TEACHERS COLLEGE RECORD

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THE SPEYER SCHOOL

PART II—ITS CURRICULUM AND ITS RELATION TO TEACHERS COLLEGE

I. THE SPEYER SCHOOL BUILDING

By JESSE D. BURKS, ACTING PRINCIPAL, assisted by the Architect, EDGAR A. JOSSELYN, in the parts relating to architectural style and detail.

The new building now about completed for the use of the Speyer School occupies a plot of ground at number 94 Lawrence street, just west of Amsterdam avenue. It is the most conspicuous and attractive edifice of the neighborhood in which it stands, rising far above all surrounding buildings in commanding height, thus symbolizing in a fitting way the influence that the school hopes to attain in the community life of which it is a part.

The structure with the equipment and ground represents an outlay of $130,000 on the part of the donors, Mr. and Mrs. James Speyer. The building is constructed of the most durable and fireproof material throughout, and the equipment is the best that could be found in the open markets. The special requirements of a school building with respect to heat, light, and ventilation have been carefully considered and, it is believed, have in large measure been met. The influence of the building itself, without regard to the activities of the school, should be large and beneficent as furnishing a practical illustration of

what can be done, under the conditions of crowded city life, to provide some of the first essentials of wholesome living.

In its architectural composition, the building follows the precedents of German Renaissance. The high-stepped gable, which is the most noticeable feature of the front, has the large inverted consoles, with their brackets, panels, and little vases and the crowning ornament and finial, which are particularly characteristic of the style that prevailed in North Germany in the middle of the sixteenth century. The main entrance, with its niche above, recalls old German doorways where the niche is usually occupied by a statuette of a saint. In this case the niche contains a figure taken from the seal of Teachers College. The main part of the building is finished in dark oak and, while for the most part it is very simple in design, some characteristic German ornament may be found in the mantels, the plaster work of the first story hall, and in the iron work of the stairways.

The irregular grouping of the windows of the front is also characteristic of this style and tells quite plainly the story of the arrangement of the interior. The windows at either side of the entrance light the library, and are accordingly made more elaborate than the others by the use of small columns enriched with German ornament. In each capital of these columns will be found the letter "S." In the second and third stories the division into two-class rooms, with a smaller central recitation room, is made quite apparent. The fourth story has an unsymmetrical plan. The heavy cornice over the fourth story marks the ending of the school building proper, and above it are smaller windows for the living rooms of the residents of the school. The upper part of the gable forms the front of a roof pavillion which is intended to be used as a greenhouse in connection with the roof-garden which can be seen at either side, back of the ornamental iron railings in the crown of the tiled roof.

In the interior the great problem to be solved was to obtain the space needed for the complicated requirements of the building and at the same time provide courts of sufficient size to afford adequate lighting to make the rooms suitable for school purposes. The space between the rear of the building and the end of the lot was made as large as was consistent with these conditions so that the rear class-rooms would have good light, even if high buildings should be built on the adjoining prop-

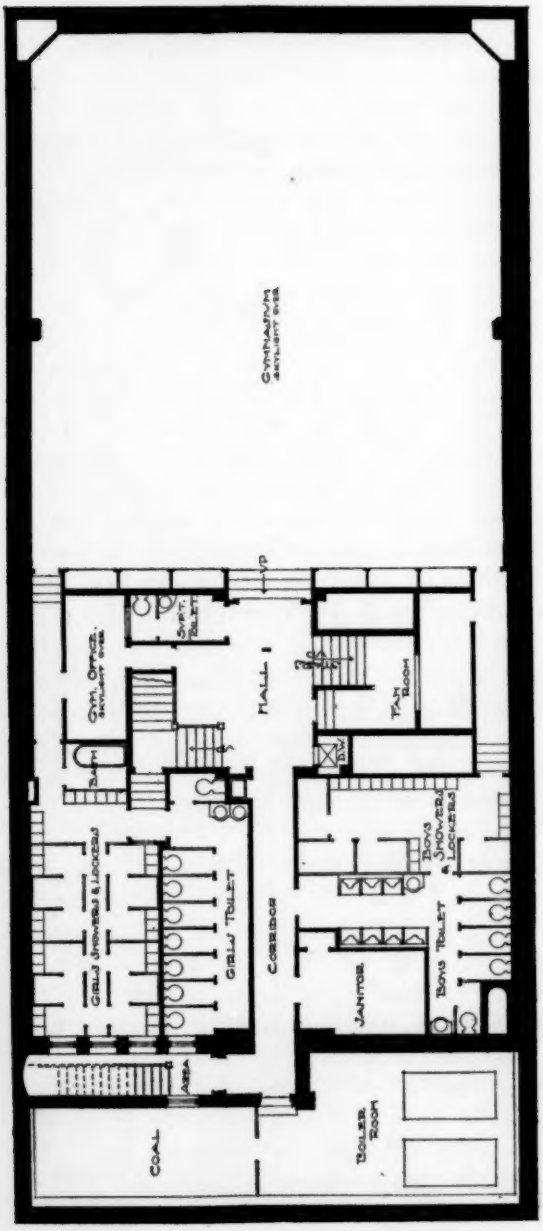
erty. The basement gymnasium, however, is extended to the rear of the lot, and, in this way, a proportionately large room is obtained that is well lighted by a skylight over this extension.

Not only in the general features of architecture and classroom arrangement, but in the details affecting practical convenience and comfort and health, the aim has been to meet the requirements of a first-class modern school building. Ample toilet and cloak-rooms have been provided. Double stairways lead from the basement to the third floor, and the plans provide space for an elevator, though this will not for the present be installed. A speaking-tube and telephone system furnish convenient means of communication between the various floors. A dumb-waiter makes easy the transfer of supplies or other material from one part of the building to another. Electric call-bells and fire-alarms are conveniently located throughout. An electrically operated clock is supplied to each schoolroom, all these clocks being controlled by a master clock in the principal's office.

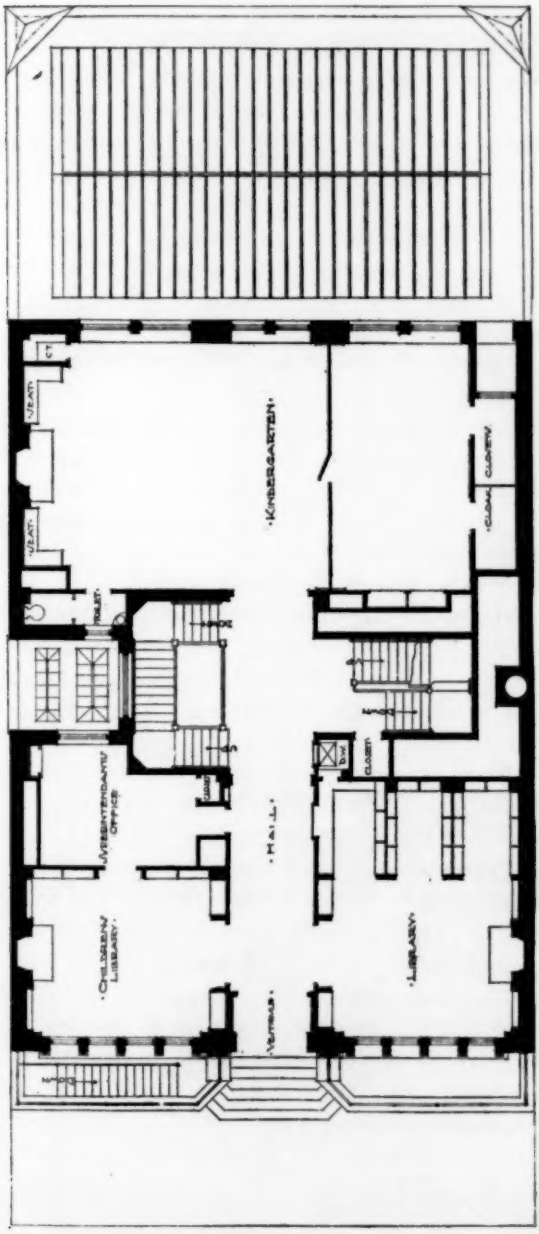
The general division and arrangement of the interior of the building is simple and will be readily understood by reference to the accompanying photograph and floor plans. The building faces toward the north-east, thus receiving the sun in the Lawrence-street windows for several hours each morning. The front of the building is represented by the left-hand end of each of the floor plans. The scale of the drawings is approximately $^1/_{16}$ in. to 1 foot. The width of the building (50 feet) will furnish a convenient standard by which to form an accurate idea of the size of any room.

The principal feature of the basement is the gymnasium having a floor space of 45 by 53 feet. The entire weight of the rear wall of the building is supported by a steel girder extending across the center of the gymnasium ceiling. By this means is secured a large floor area, unobstructed by pillars, and excellently lighted by skylight over the rear half. This room will be equipped with carefully selected apparatus, adapted both to school purposes and to the requirements of classes of adults and children outside the school. The gymnasium, having a seating capacity of about five hundred, will be utilized as a general audience room for large gatherings.

Besides the gymnasium, there are on the basement floor an office for the instructor in physical training, a janitor's room,



BASEMENT PLAN



FIRST FLOOR PLAN

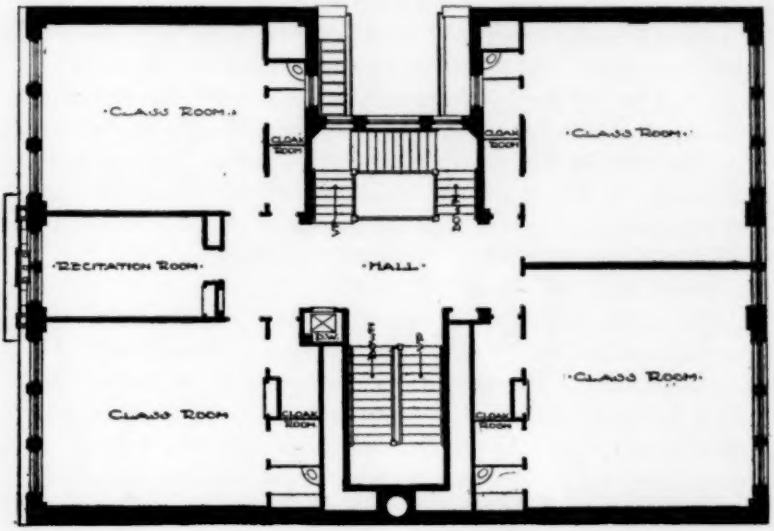
shower baths and toilet-rooms, and the plants for warming and ventilating the building. Access, independent of the main entrance, is furnished to the gymnasium and baths through a door at the front of the building and steps leading directly to the sidewalk.

On the first story, the entire rear, which is the sunny side of the building, is devoted to the Kindergarten. Folding doors make it possible to divide the large room into two smaller ones when the work of the two divisions of the Kindergarten require it. Wash-rooms, toilet-rooms, and cloak-rooms conveniently open directly into the main room, and a large fireplace, with seats at either side, give it an air of homelike comfort.

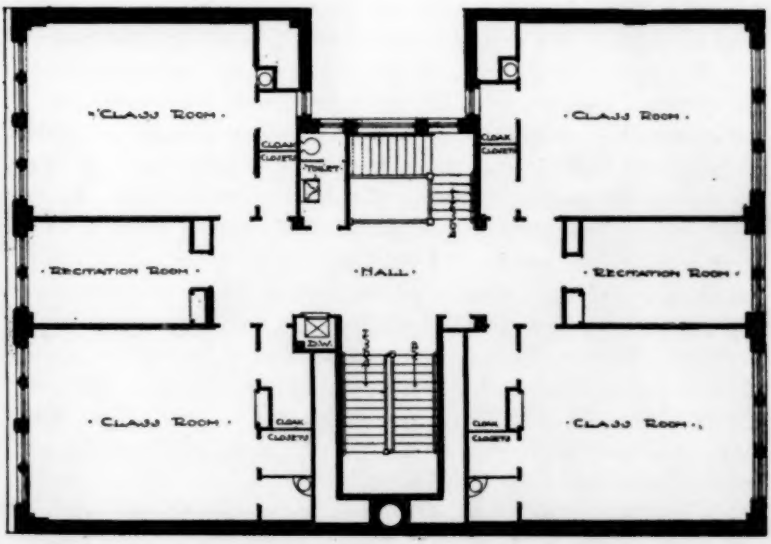
The principal's office is located on the first floor, with window and skylight on the central court. The front of this floor is occupied by two public libraries directly at the main entrance, one being intended for children and the other for adults. Each of these libraries contains a fireplace and a long attractive window-seat. The position of the libraries is such that they may be used independently of other parts of the building and without interfering in any way with class-room work.

The second and third stories contain eight class-rooms that will accommodate thirty pupils each, and three small recitation rooms. These rooms are all adequately lighted and are provided with adjustable desks and chairs, teachers' desks and bookcases, all in dark oak to match the interior woodwork, and with slate blackboards. Each class-room has two separate cloak-rooms, one for boys and one for girls. These rooms are entered directly from the class-room, though an exit is provided from one of them into the hall. Each class-room has also a teacher's closet and wash basin with running water. On the third floor is a small toilet-room for boys, and on the fourth floor a similar room for girls.

The fourth floor is devoted to special rooms for manual arts. At the rear is a large room equipped for practical work in domestic science. This room is finished in natural yellow pine and is provided with ranges, tables with individual gas stoves and cooking utensils, refrigerator, sinks, and other accessories of a department of domestic science. The other large room at the rear is equipped for practical work in domestic art. Sewing machines, cutting tables, closets for uncompleted work, and other conveniencies furnish a laboratory that will meet the requirements of a large number of classes. Between the two



SECOND FLOOR PLAN



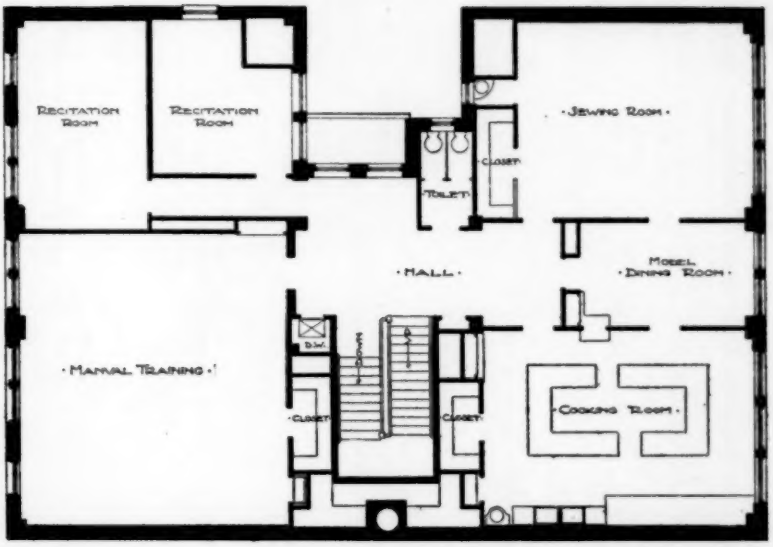
THIRD FLOOR PLAN

large rooms at the rear is a smaller room that will be furnished as a model dining-room and used in connection with both the adjoining rooms. At the front of the building is a commodious room (25 by 27 feet) for general bench-work. An equipment of twenty benches with appropriate tools, and an outfit of general tools will be installed in this room. There are two recitation rooms on this floor, one of which will be divided by movable screens to represent a small apartment house, and will be used for practical work in general housekeeping and for an emergency and rest room.

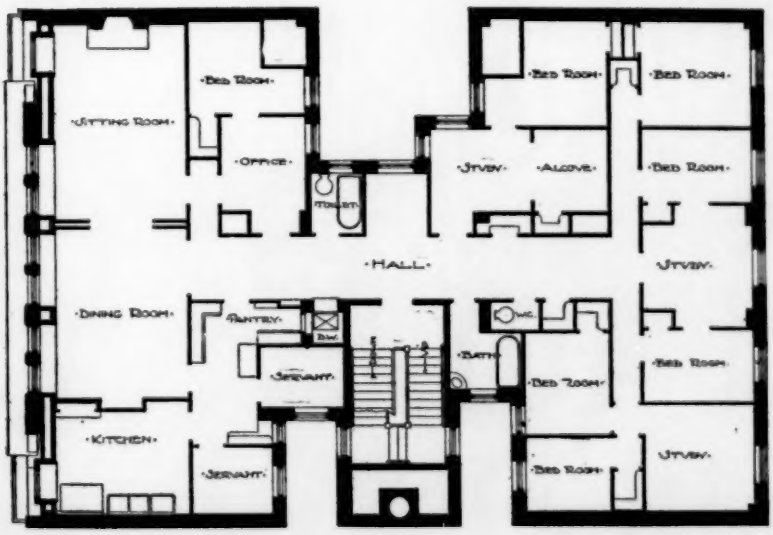
The fifth floor is designed for the living apartments of the principal and his family and other residents of the school. This floor can be entirely isolated from the remainder of the building, having its own spacious hall separated from the main stairway leading to the roof. In the front are a general sitting-room and dining-room, with fire-place, window-seats, and other homelike arrangements. Adjoining the sitting-room is an office and a small reading-room for the use of all the residents. There are three suites, each consisting of two bedrooms and a common study, and two single rooms on this floor; so that a group of seven residents may easily be accommodated in comfortable quarters.[1] A kitchen, butler's pantry, servants' rooms, bath-rooms and toilet-rooms complete the arrangements for residents on this floor.

The roof is designed as a recreation ground and garden for the children and residents of the school, and for the people of the community in general. It is enclosed by protective guards of wire-lattice work and has a trellis for vines extending from the rear of the roof to the green-house pavillion in front. Potted plants and vines will ornament the roof, and a small plot of earth will be laid out for practical gardening to be carried on by the children of the primary grades. In addition to these there will be one or more large sand tables which will allow much of the work otherwise conducted in the schoolroom to be carried on out of doors, when the weather is fine. It is expected that this roof-garden will make possible many activities of an unusually wholesome kind and will prove to be one of the most delightful and helpful features of the building.

[1] The school residents will devote themselves not to class-room instruction, but to the direction of clubs for children and adults and to other forms of school extension work, during the afternoons and evenings.



FOVRTH FLOOR PLAN



FIFTH FLOOR PLAN

OUTLINE OF CURRICULUM

Subjects	Kindergarten		First Grade	Second Grade
	First Year	Second Year		
Surrounding Occupations and Primitive Life	Morning Circle, Games, and Stories are based partly on Surrounding Occupations and Primitive Life.	Morning Circle, Games, and Stories are based partly on Surrounding Occupations and Primitive Life.	The Home; the Street; Buildings; Vegetable and Fruit Gardens; Grocery Store; Ice Industry; Bakery; Butcher Shop; Dairy Store.	Vegetable and Fruit Garden; Typical Farm; Village; Eskimo Life; The Home; Frame Building; Lumbering; Brickmaking; Quarrying.
Nature Study	Talks based on Excursions to Parks and Woods and on material collected on these Excursions.	Excursions to Parks and Woods: Observation and Naming of Objects of Nature.	(Following the order of seasons) Observation and Naming of Characteristic Plants and Animals; Study of Processes of Growth and Metamorphosis; Home Pets; Garden Products; Excursions.	Return of Life in Spring; Germination of Seeds; Care of House Plants; Study of Plants and Animals related to Surrounding Occupations and Primitive Life.
Hand Work	Work with 1st, 2d, 3d and 4th Gifts and with other Material; Pricking; Sewing; Weaving; Pasting; Cutting; Clay Modelling; Sand-table Work.	Work with 5th and 6th Gifts and with Sticks, Rings, Tablets, and other material; Coloring; Sewing; Weaving; Folding; Clay Modelling; Sand-table Work.	Objects and Processes Studied elsewhere are represented by use of Paper and Cardboard (cutting, folding, and pasting) and of Clay, Raffia, Cord, Crayons, and Paint.	Wood Work; Sewing; Weaving; Cooking; Moulding; Drawing; Painting — closely related to Occupations, Literature and Mathematics.
Mathematics	Not differentiated from Gift Work, Games, and Hand Work.	Not differentiated from Gift Work, Games, and Hand Work.	Counting; Notation; and Units of Measure required in other subjects.	Estimating and Measuring required in various topics; Counting; Arabic and Roman Notations.
English: Literature Reading Written Work	Nature Stories; Fairy Tales; Myths; Folk Stories.	Myths; Folk Stories; Fairy Tales; Bible Stories.	Stories; Poems; Fables; Words of Songs. Beginning Reading. Large, rapid Movements at blackboard; Writing Names, Words and Simple Sentences; Easy Dictation; Use of Capitals.	Appropriate Stories, Poems, and Fables. Reading from Primary Readers and other Books. Large writing encouraged; Copying, Dictation, and easy Composition; some common Symbols and Forms.
Music	Morning Circle; Musical Games; "Occupation" Songs.		Training in Rhythm, Beats, Duration, and Pitch; Harmonic Character of Tones; Syllables; Simple Songs and Singing Games.	Work of First Year Continued; Notation of Illustrative Songs.
Physical Exercises	Games; Marches; and Plays.		Rythmic Drills; Dancing; Games; Plays; Imitation of Normal Activities and Primitive Occupations; Formal Movements; Individual Exercises.	

Subjects	Third Grade	Fourth Grade	Fifth Grade
Surrounding Occupations and Primitive Life	Pioneer Life; Indian Life; Colonial Life; Primitive Life; Modern Life; Transportation; Communication; Commerce; Manufacturing; Mining; Lumbering; Agriculture; Fishing; Hunting; Trapping.	Pioneer Life; Indian Life; Colonial Life; Primitive Life; Modern Life; Transportation; Communication; Commerce; Manufacturing; Mining; Lumbering; Agriculture; Fishing; Hunting; Trapping.	Pioneer Life; Indian Life; Colonial Life; Primitive Life; Modern Life; Transportation; Communication; Commerce; Manufacturing; Mining; Lumbering; Agriculture; Fishing; Hunting; Trapping.
Nature Study	Study of Plants and Animals related to Surrounding Occupations and Primitive Life.	Study of Plants and Animals related to Surrounding Occupations and Primitive Life.	Study of Plants and Animals related to Surrounding Occupations and Primitive Life.
Hand Work	Wood Work; Sewing; Weaving; Cooking; Moulding; Drawing; Painting — closely related to Occupations, Literature and Mathematics.	Wood Work; Sewing; Weaving; Cooking; Moulding; Drawing; Painting — closely related to Occupations, Literature and Mathematics.	Wood Work; Sewing; Weaving; Cooking; Moulding; Drawing; Painting — closely related to Occupations, Literature and Mathematics.
Mathematics	Estimating and Measuring required in various topics; Counting; Arabic and Roman Notations.	Estimating and Measuring required in various topics; Counting; Arabic and Roman Notations.	Estimating and Measuring required in various topics; Counting; Arabic and Roman Notations.
English: Literature Reading Written Work	Appropriate Stories, Poems, and Fables. Reading from Primary Readers and other Books. Large writing encouraged; Copying, Dictation, and easy Composition; some common Symbols and Forms.	Appropriate Stories, Poems, and Fables. Reading from Primary Readers and other Books. Large writing encouraged; Copying, Dictation, and easy Composition; some common Symbols and Forms.	Appropriate Stories, Poems, and Fables. Reading from Primary Readers and other Books. Large writing encouraged; Copying, Dictation, and easy Composition; some common Symbols and Forms.
Music	Work of First Year Continued; Notation of Illustrative Songs.	Work of First Year Continued; Notation of Illustrative Songs.	Work of First Year Continued; Notation of Illustrative Songs.
Physical Exercises	Rythmic Drills; Dancing; Games; Plays; Imitation of Normal Activities and Primitive Occupations; Formal Movements; Individual Exercises.	Rythmic Drills; Dancing; Games; Plays; Imitation of Normal Activities and Primitive Occupations; Formal Movements; Individual Exercises.	Rythmic Drills; Dancing; Games; Plays; Imitation of Normal Activities and Primitive Occupations; Formal Movements; Individual Exercises.

Subjects	Third Grade	Fourth Grade	Fifth Grade
Primitive Life; History	Story of Ab.; Thompson Indians; Alqonquin and Iroquois Indians; Cliff Dwellers and Pueblo Indians; Robinson Crusoe. The Great Industries — Agriculture, Food Getting, Making of Dwellings and Clothing, Trade and Transportation, Preservation of Knowledge, Æsthetic Arts.	Homeric Greeks — agricultural and pastoral life; Later Greeks, particularly the Athenians; Hebrews; Romans — characteristic social customs; Middle Ages — Chivalry and the Crusades; Discovery and Exploration.	Explorations; Colonization in America — the Dutch in New York, the English at Plymouth Colony and in Virginia as types, Spanish and French Colonies; Colonial History to 1776.
Geography		Topography of the immediate Environment; a typical Village; New York Harbor; Commerce, Industries, and Government of the City.	The Earth as a Whole with brief study of Continents and principal Countries. Detailed study of North America begun.
Nature Study	The Great Food and Industrial Plants and Animals related to Primitive Life or to the School Environment; Simple Principles of Physics; proper Food, Water, and Clothing.	Plants and Animals prominent in the Study of History and Primitive Life; Study of Atmosphere; Experimental work with Lime, Cement, and Asphalt.	Type Studies of Plants and Animals in different sections; Observation of the Heavens; the Barometer; Simple Principles of Heating and Ventilation.
Hand Work	Modelling in Clay; Woodwork; Cooking; Sewing; Drawing and Color Work — in relation to Primitive Life and School Environment.	Variety of objects made in connection with study of Primitive Life and History — using appropriate material and methods.	Making of objects representative of Colonial life; reproduction of processes common in Colonial life; Laundering; Repairing; Crocheting; Color Work and Drawing; Domestic Science.
Mathematics	Fundamental Operations; Measuring; Geometrical Forms; Simplest Common and Decimal Fractions in ordinary use.	Drill in Operations; Denominate Tables; Operations with Fractions; Business Forms; Oral Work.	Compound Numbers; Reduction of Fractions; Operations with Decimal Fractions; Business Forms; Oral Computation; Concrete Geometry, as required in other work.
English: Literature	Stories and Poems dealing with Indian Life; Mythology; Fables; other Selected Literature.	Selected Literature to be read by the Teacher or by the Class.	Silent and Class Reading of complete pieces of Literature of considerable length.
Reading	Large amount of Reading from numerous readers and story books.		
Written Work	Position and Movement in Writing; Composition — grammatical structure and rhetorical qualities. Material for Composition taken from other school subjects.	Grammatical Usage and Qualities of Style studied in connection with letter-writing and composition work.	Frequent short Compositions — outlining, paragraphing, and grammatical analysis.
Music	Staff Representation; Songs; Individual practice in Singing and Writing.	Sight Singing — individual and class practice.	Sight Singing — drill in quickness and accuracy; Individual and Choral Singing.
Physical Exercises	Rythmic Drills; Dancing; Games; Plays; Imitation of Normal Activities and Primitive Occupations; Formal Movements; Individual Exercises.		

II. CURRICULUM OF KINDERGARTEN AND FIRST FIVE GRADES OF ELEMENTARY SCHOOL

By F. M. McMURRY, with assistance of T. D. WOOD, CAROLINE G. O'GRADY and C. H. FARNSWORTH, in the parts relating to Physical Education, Kindergarten, and Music respectively.

Physical Exercise

The following curriculum for physical education is the work projected for the Speyer School. The same program is being tested this year in the Horace Mann School by the Physical Education department in co-operation with Miss Mari Ruef Hofer of the Music department.

Any one of the following exercises may well be used for several ages; there is no attempt, therefore, to assign them to any particular age or grade.

Exercises Largely Rhythmic

Walking, running, skipping, hopping, jumping, sliding, high stepping, toe pointing.

Swimming, rowing movements, flying, swinging arms, clapping hands.

Dancing: single, fancy steps; combinations of dancing movements, and national and folk dances with appropriate music adapted to the grades.

Movements adapted from normal activities and primitive occupations: swimming, climbing, rowing, paddling; throwing of weapons, balls, wooden imitations of spears, javelins; adaptations of agricultural activities, as mowing, pitching, swinging of flails.

Rhythmic drills with wands, rings, dumb-bells, Indian clubs, with and without music, going from the simpler to the more complex, according to the age and proficiency of the children.

Individual exercises, with or without apparatus, taken from the foregoing, or carried out with special appliances for individual conditions which need personally adapted movements.

Formal Gymnastics

More formal gymnastic movements, from which selections may be made for use in the school-room and for part of the daily program in the gymnasium, are as follows:

1. *Arm movements.*
   - (1) Hips firm.
   - (2) Arms upward bend — stretch — fling — raise.
   - (3) Arms forward stretch — fling — raise.
   - (4) Arms sideways stretch — fling — raise — half bend.
   - (5) Arms backward stretch.
   - (6) Under and over grasp — hang, from bar or rope.
     Travel on same with arms bent.
     Travel on same with arms straight.
   - (7) Inclined pole or rope — travel.
   - (8) Fall; hang; position.
2. *Leg movements.*
   - (1) Foot placings.
     a. Forward.
     b. Outward.
     c. Sideways.
     d. Backward.
     e. Crosswise.
   - (2) Leg forward lift, or outward lift.
     a. Knee bend.
     b. Knee stretch.
     c. (a) and (b) with foot-flexions.
   - (3) Leg backward stretch — with foot flexions.
     (See balance movements.)
3. *Head movements.*
   - (1) Forward bend — upward raise.
   - (2) Backward bend — upward raise.
   - (3) To right or left bend — upward raise.
   - (4) To right or left twist — forward turn.

4. *Trunk movements.*
   (1) Trunk forward or downward bend.
   (2) Trunk to left or right bend — upward raise.
   (3) Trunk to left or right twist. (Avoid backward bending.)

5. *Shoulder-blade exercises.*
   (1) Left arm upward stretch — change arms.
   (2) Left arm upward stretch, right arm sideways — change.
   (3) Left arm sideways stretch, right arm forward — change.
   (4) Left arm upward stretch, right arm forward — change.
   (5) Arms sideways and backward stretch.
   (6) Arms forward — upward fling — forward bend — upward fling.
   (7) Arms sideways stretch — forward fling.

6. *Balance movements.*
   (1) Heels raise.
      a. Close standing.
      b. Foot movements in different directions.
   (2) Crosswise standing, heels raise.
   (3) Hips firm, knees bend.
   (4) Hips firm — alternate knees bend — upward.
   (5) Hips firm — knees bend with (1) a, b.
   (6) Toe standing — head rotate.
   (7) Hips firm — knees bend — head rotate.
   (8) Combine above with arm movements.
   (9) Jumping. Analysis: heels lift; knees bend; up; down; heels sink.
      Standing or running distance-jump; high jump; jumping down from height.

Adaptation of Formal Gymnastics in Marching

1. *Leg movements.*
   (1) Common-time march.
   (2) Double-quick march.
   (3) Half-time march.
   (4) Backward march.
   (5) Change-step march.
   (6) In-place march.

(7) Accent march.
(8) On-tiptoe march.
(9) Long and short step.

2. *Arm movements.*
   (1) March with drums — beat, with outward and downward movement of arms.
   (2) Similarly, with flags, cymbals, horns, soldier-caps, knapsacks, swords, guns.

3. *General Orders.*
   (1) Front face.
   (2) Right or left face.
   (3) Right or left about face.

Adaptation in Games

1. *Singing games.*
   (1) Ring Around Rosey.
   (2) Mulberry Bush.
   (3) Looby Loo.
   (4) Round and Round the Village.
   (5) Three Dukes.
   (6) Jenny Jones.
   (7) Green Gravel.
   (8) Jolly is the Miller.
   (9) On the Bridge at Avignon.
   (10) Going to Jerusalem.
   (11) Oats, Peas, Beans and Barley Grows.
   (12) Over the Green Grass.
   (13) Mow, Mow the Oats.
   (14) I'm on the King's Land.
   (15) Virginia Reel.
   (16) Muffin Man.
   (17) London Bridge. (Omit tug-of-war part.)

2. *Games without singing.*
   (1) Tag games: touch, wood, squat, cross, Chinese, one-foot-off-and-one-foot-on, sitting, number, etc.
   (2) Prisoner's Base.
   (3) Steal Sticks.

(4) Three-in-row.
(5) Cat and Bird.
(6) Fox-and-geese in Snow.
(7) Turn ring wrong side out.
(8) How many miles to Marleybright?
(9) Puss in Corner.
(10) Duck on Rock.
(11) Stage Coach.
(12) Drop the Handkerchief.
(13) Pom-pom pull away.
(14) Queen Dido is Dead.
(15) Jumping the rope. (For second grade and up.) Be sure that the jump is made correctly.
(16) Races: Touching-wall; placing-object; relay.
(17) Simon Says Thumbs Up.
(18) Pigs Fly.
(19) Nosey-nosey.
(20) Peas-porridge Hot.
(21) Hide the Thimble.
(22) Jenkins Up.
(23) Pass the Slipper.
(24) Follow the Leader: Walking (ordinary, tiptoe, long and short steps, sideways), skipping, hopping, jumping, sliding, high stepping, forward bending, jumping to touch point, sitting and rising in alternate seats, across room, vaulting seats, swinging between seats, swinging around desks on hands, jump and sit on table, arm swinging, hand clapping, touching books on floor.
(25) I Say Stoop.

PLAYS (NOT CORRELATED)

1. *Ball.*
(1) For individual: Tossing and catching; bouncing and catching; continued bouncing; bouncing against wall; throwing or rolling at mark.
(2) Group: Rolling; batting; tossing; kicking; bouncing; passing; relay races and hiding.

2. *Bean bags.*

(1) Carry on head.
(2) Trunk forward bend — drop bag on floor; knees bend — pick up.
(3) Toss and catch — right — left — both.
(4) Throw — right — left — both: at object; into opening; across the floor.
(5) Swing bags.
(6) Races: placing bags; passing bags; picking up bags.
(7) Jump over successive bags.
(8) Toss bags to captain.
(9) Child, in centre of circle, try to stop bag.

Correlated Plays — According to Season

(These plays are to be partly substituted for formal gymnastics in order to furnish more motive to the children than such gymnastics afford, and to increase their observation, their knowledge, as well.)

1. *Fall Series.*

(1) Plays correlated with birds: migration (taken up again in the spring); flying, flapping, sailing, fluttering; hopping, walking, running, stalking.
(2) Correlated with other animals — characteristic movements and habits: chipmunk, squirrel and rabbit — running, springing, jumping; horses, cows, dogs, cats, ducks, chickens, turkeys and pigeons — running, galloping, strutting, walking, drinking.
(3) Correlated with insects: caterpillars, crickets, grasshoppers, spiders — movements of crawling, springing, jumping, etc.
(4) Correlated with trees: roots — stand firmly; trunk — stand straight, tall; branches — arms stretch, sway; leaves — move fingers; types of trees — illustrate poplar, maple, apple, pine, willow.
(5) Correlated with visits to parks, woods, and orchards: run on soft earth; walk in deep sand (treading); walk on heels in mud (slowly and softly); jump over ditch; stoop to pick flowers; stretch up to

reach leaves (right, left, both, head upward bend); scuffle through leaves (kicking); sit down and rest.

Throw at apples; shake branches; put apples in bags and carry; wheel in wheelbarrow.

Shake tree or branches; throw at nuts; crack with hammer.

(6) Correlated with grain and grasses (contrast to trees): free, easy, graceful swaying; nodding; bending.

(7) Correlated with farmer: mowing, reaping; threshing (using flail); gathering vegetables and fruits; driving horses (tight rein); driving oxen (crack whip).

2. *Series between Thanksgiving and Christmas — Industry.*

(1) Correlated with clock shop: pendulum — find hinges in body, shoulder, elbow, wrist, hip, knee; swing each.

(2) Correlated with blacksmith, carpenter, and miller: arm and body movements.

3. *Winter Series.*

(1) Correlated with ice and falling snow: imitation of skating, snowballing, sleighing, shoveling snow, walking through deep snow; warming hands and feet (swinging of arms); watching snowflakes (head twistings).

(2) Correlated with Christmas: representation of toys — toy elephant (nod head, right, front, left); jointed doll; jumping-jack; Chinese mandarin; drum; ball; bow and arrow.

4. *Spring series.*

(1) Correlated with birds (coming back): flying; hopping; running; walking; young learning to hop and fly; stretching; looking up and down out of nest.

(2) Correlated with gardener and farmer: raking; spading; throwing out rocks; watering; plowing; sowing.

(3) Correlated with spring picnic: representation of getting on and off train; swinging; dancing; see-sawing; riding in merry-go-round, etc.

CORRELATED PLAYS — ACCORDING TO SUBJECTS

1. *Correlated with Indians*

Rowing and paddling; riding; shooting with bow and arrow; dancing war dance.

2. *Correlated with knights*

Riding; tilting; catching rings, etc.

3. *Correlated with various other subjects*

Representation of appropriate features of stories, myths, and other familiar activities; e.g. Noah's ark, Mercury, Mother Goose, Jack-be-nimble, circus (collection of animals), parade (band, infantry, cavalry).

Kindergarten

(*Two Classes, Four and Five Years of Age, Respectively*)

The following exercises are given to the two divisions together:

Morning Circle.

A simple prayer and hymn — nature songs and talks.

March.

Effort made in the march to have a rich variety of physical movement.

Game Period (first half).

Games of pure activity played by the two divisions together; opportunity often given here for the children to show new and original games.

Closing circle and talk.

Good-by songs sung, and the hand-work of each division shown to the other.

Stories. **FIRST YEAR** (Kindergarten)

Very simple nature-stories, fairy-stories, a few simple myths and folk-stories. Typical stories: "Thumbling," "The Three Bears."

Many finger-plays and action songs and rhymes given in this year.

Games.

Many pure activity games, involving only large, fundamental movements; simple games with a ball; dramatization of stories by the children.

Nature-work.

Many excursions to the neighboring parks and woods, which are the basis of nature-talks. The children bring back to the kindergarten flowers, leaves, buds, nuts, seeds, that are used for classification, for decoration of the room, and in hand-work.

Gift-work.

Use of the First Gift (six colored worsted balls), Second Gift (wooden sphere, cube and cylinder), Third and Fourth Gifts (building blocks of two varieties).

Experiments in laying figures with large seeds and shells, often on the floor. Also other material, collected from outside sources, for comparison; e.g., round and red objects, collected when playing with the red ball. This comparison made through action rather than through words, owing to value of motor activity.

Hand-work.

Pricking — only large work, as pricking through heavy paper with meat-skewers on the sand-table.

Sewing — a little decorative sewing with heavy worsted and large needles.

Drawing — with marking crayons on paper, and with chalk on the blackboards.

Weaving — with linen mats and wide strips, using fingers to weave with.

Pasting — simple patterns with two-inch squares and circles.

Stringing — beads of different form and color; also natural objects, as acorns, cranberries, seeds, etc.

Blowing — soap-bubbles.

Cutting — free work; first use of scissors.

Clay-modelling — large mass-work, as ball, and simple objects based on it.

Sand-table exercises — mostly illustration work.

Nature material used in every possible way.

SECOND YEAR (Kindergarten)

Stories.

Only great typical stories, myths and folk-stories, as "Proserpine," "St. George and the Dragon"; fairy-tales, adapted from Grimm and Andersen; a few Bible-stories.

Games.

Many more nature-games, imitating tradesmen at work, growing out of excursions to see a blacksmith, a wheelwright and a carpenter at work.

Marching of soldiers.

Games of activity, allowing competition, and involving skill; e.g., bouncing and catching ball.

Nature-work.

Excursions to the parks, noting trees, branching, budding and flowering, leaves falling, flowers (differences in growth), seeds, nuts, fruit and vegetables (stages of ripeness). Naming of these, and recognizing them by games of smell, taste and touch, as well as by sight.

Nests, cocoons and an aquarium of fish in the kindergarten.

Gift-exercises.

Fifth and Sixth Gifts (building blocks with three varieties of form in each).

Stick and ring-laying.

Work with jointed slats.

Pattern-laying with seeds and shells.

Four varieties of triangular wooden tablets (planes); with all kinds of similar material from outside sources added, to carry out principle of comparison.

Hand-work.

Drawing — on blackboards, and with crayons on paper.

Coloring — large work with Japanese brushes; flowers, leaves, fruit, etc.

Sewing — various combinations of lines. Free inventions. A little illustration work; e.g., a flag on Washington's Birthday.

Weaving — progressive emphasis on the use of number, with a free invention after each third mat.

Folding — square papers into various forms; e.g., doll-house furniture; also some symmetrical forms; with plenty of invention.

Clay-modelling — more emphasis on correctness of form and variety of expression. Cutting of the different typical forms found in Gifts.

Peas-work — outlining of solids. Plenty of invention from children.

Sand-table — cutting out solid forms; laying patterns with shells; picture-making, using sticks to draw with.

In all of the hand-work very crude illustrative and decorative work is accepted. The result is the making of simple playthings and presents for the home, rather than the production of more permanent objects, such as are found in the grades.

First Grade

(*Basis of year's work is largely Study and Reproduction of Surrounding Occupations*)

Occupations

The home and its immediate surroundings.

Plan of house (or flat); number of rooms; arrangement and use of each. (Floor plan represented by blocks and drawings.)

Furniture and decoration — study best arrangement. (Compare with school-building.)

Street.

What the city authorities do to keep it clean.

What children can do to make it attractive.

Real and imaginary buildings.

Floor plans of same represented by blocks.

Measure dimensions of school-building, etc., and represent by blocks, to a scale roughly.

Drawings.

Furniture and decoration — by blocks, etc.

Verbal descriptions.

Vegetable and fruit garden — Fall work.

Garden represented in sand; by blocks; by drawings.
Naming of products still found there.
Preparation of these products for market.
Marketing of same in play.
Study of garden implements.
Effect of frost on soil.
Gardener's preparation for winter.

Vegetable and fruit garden — Spring work.

Preparation of soil. School garden on roof.
Making of beds; planting seeds and setting out plants.
Kinds of products. First kinds marketed. Preparation for market.
Play marketing.
Study of garden implements.

Neighboring grocery store.

Represented by blocks, — floor-plan (to a scale) and walls; counters; refrigerator; cash-stand.
Articles seen there on excursion recalled.
Stocking store and placing stock.
Buying and selling in play — children giving orders, as parents do.
Actual use of measures; i.e., pint, quart, pound, (bags weighing one, two, three, five pounds used).
Give approximate dimensions of objects as part of description.
Tying knots.
Wrapping bundles.
Judging quality of apples, potatoes, oranges, cabbages, bananas, beets, etc., by appearance, size, and by touch.

Ice Industry.

When and how ice is gotten. How preserved.
Story of a block of ice.
Representation of ice-house, with ice in it.
Judging quality of ice.
How to make most use of in summer.
Represent layer of ice over water by means of cork.

Bakery.

Representation of store, counters, etc., by blocks.
Represent oven and other objects in basement.
Names of utensils and materials used.
Grains of wheat examined — milling process roughly reproduced.
Play store.
Distinguish between fresh bread and stale.
Experiment with yeast and baking powder, and do some actual baking.
Actual kneading with dough (or clay), comparing with action of kneading machine seen in bakery.
Model, in clay, loaves of bread, pies, cakes, doughnuts.

Butcher-shop.

A few facts only as:
The kind of animal that produces beef; mutton; veal; ham and bacon.
That meat does not keep indefinitely; keeps best in clean, cold place.
Meat flecked with pieces of fat is likely to be good, etc.

Dairy-store.

Description of same.
Delivery of milk about city.
Where milk comes from.
Plan of dairy-barn, in blocks. (Excursion.)
Feed of cows, in summer and in winter.
Visit to feed-store.
Care of milk.
Transportation.
Making of butter; judging good butter.
Recognition of cream and skimmed milk.
Skimming.
Buttermilk.
Cheese.

NATURE STUDY

Fall.

Names of vegetables and fresh fruits at store; some description; use of each; manner of eating. Vegetables in garden; names; plan of reproduction; seeds. Potato.

Names and description of favorite flowers. Collection of leaves; naming trees from which they come. Differences between trees and animals in growth, and comparison with human growth. Flight of birds to warmer countries. Excursions, if possible, to zoölogical garden; discussion of care of animals, involving comparison with ourselves as to heat necessary (thermometer), covering, foods, change from summer to winter, etc.

Winter.

Home pets — squirrel, cat and dog. Rat and mouse.
Cow — uses of milk, hide, meat, hair.
Care of house plants — care and study of those in school.
Collection of nuts, with names.
Wheat — with pictures of fields of wheat — threshing.
Pine tree.
Snow and ice. Other forms of water — dew, frost, rain, fog, hail.

Spring.

Vegetables and fruits in grocery — order of arrival at store; description; manner of raising; of eating.
Preparation of garden in window — out of doors, possibly. Planting and caring for beans, sweet peas, and wheat. Observations of their growth. A few vegetables.
Visits to florists.
Favorite flowers studied.
Naming of common trees — with some description.
Study and care of plants in school and home.
Return of the birds.
Common birds — sparrow, robin, crow.
Barnyard fowl — hens, ducks, chickens, ducklings.

Handwork

Paper and Cardboard, principally.

Cutting out pictures, stamped figures; squares, oblongs, diamonds, stars; forms of fruit; paper clothing for dolls; human figures, forms of animals, fruits, vegetables.
Cutting, folding and pasting into toy furniture, as cradle, dining-room furniture, kitchen utensils; boxes, cornu-

copias, flowers, boats, fans; seed envelopes; valentines with decorations; bags for store.

Bind sheets of paper into books for school use, making cloth (burlap) or cardboard covers.

Cutting of stencils and using them in decorating wall paper, table covers, etc.

Sewing, in cardboard or burlap, forms of vegetables, borders, designs for carpets, bed-spreads and table covers, grocer's boxes, barrels, cereal packages, cans, bags; pint and quart measures. (Possibly make many of these objects in three dimensions with paste, paper and cardboard.)

Toys, as boats, windmills, cars, etc. Bookmarks, decorated. Making of real wash-cloth; scrub-cloth; needle-book; iron-holder.

Clay.

Model forms of vegetables and fruit (color same); nuts, paving stones; bottles; cow, dog, cat (coloring same); articles from grocery; figures and actions described in literature; crockery for house (decorated).

Raffia, grape vine, or native grasses.

Braiding, binding, twisting; napkins, mats, doll hats, baskets.

Cord.

Braid, in chain stitch; knots; make scissors-cord, horse-reins, curtain holders, hammock. Weave rugs and carpets. Portières of threaded beads.

Drawing and Color Work.

Drawing. Views and events: in charcoal, chalk, pencil, water color.

Illustrations for stories. Vegetables, leaves, fruits.

Trademarks reproduced in water color.

Drill in straight lines, circles, laying flat wash in color. The rainbow; 3 primary colors and combination.

Design. Decoration for objects in house and stores and fairy-tale plays. Wall paper, table covers, blankets, towels, plates, cups and saucers, etc. Crowns, shields, spears, banners, etc., for plays.

Materials: Black and colored crayons; white and colored chalk; charcoal; white, gray and tinted drawing paper; Prang's Water Color Box, No. I.

Wood.

Articles of furniture in very thin wood; fence for garden, with vine supports; trellis; small rakes, digging-sticks; — possibly with sand table to represent garden, place these objects in it. Wooden dasher for wide-mouthed bottle, for churning. A flail. Weather vane. Counters and boxes for grocery store. Toys, as boats, tops, wagons, etc. Wooden spades for sand table.

Tools — Saw, tack-hammer, nails, sand paper, mitre-box.

Processes — Measuring, sawing in straight slot of mitre-box, nailing, sand-papering.

Painting or staining.

Mathematics

(*No separate time in the program, therefore incidental to other work.*)

Counting and reading numbers to 100, to find page in reader, to read thermometer, etc.

Common notation to 20, as part of writing. Fractions ½, ⅓, ¼, used in folding paper and work with blocks.

Measures, — inch, foot, yard; pint, quart; pound. Such addition and subtraction as is required in use of the various materials, as in grocery store, etc.

Counting by 2's, 5's and 10's as other work requires it.

Some attention to Roman numerals on face of clock.

English

Literature.

Old Woman and Pig.
Three Bears.
The Anxious Leaf.
Lion and Mouse.
Discontented Pine Tree.
Explanation of Thanksgiving Day.

The Fir Tree (Andersen).
Christmas Story.
The Little Match Girl (New Year Story).
Cinderella.
Four Musicians.
Ugly Duckling.
Pea Blossom.
The Sleeping Beauty.
The Frog Prince.
Rose Red and Rose White.
Jack and the Bean Stalk.
Beauty and the Beast.
Dick Whittington.
Puss in Boots.

Fables, especially those connected with the animals studied, such as:

Dog in the Manger.
Dog and the Shadow.
Dog and the Calf.
Town Mouse and Country Mouse.
Lion and Mouse.
Wolf and Lamb.
Boy and Wolf.
Fox, Crow, and Cheese.

Among memory gems, Mother Goose and other old Nursery Rhymes (Heart of Oak Series, No. 1). Some of the simpler proverbs.

Words of songs sung in this grade.

Reproduction of stories by short sections, as they are presented. Practice in telling whole story at a time. As much correction of bad English as can take place without serious interruption of children's thought. Stories acted by children.

Some reading to class by teacher.

Beginning Reading.

Recognition of words and sentences on board, or on cards, taken from interesting subjects in literature, etc. Approximately eighty words learned in this way, in script.

Phonics introduced at end of six weeks or two months. Slow enunciation of words; sounds of consonants and short sounds of vowels first taught.

Primer or first reader introduced as above work approaches completion. Several readers used for sake of variety, the poorer portions being omitted. Good expression a prominent aim.

Preferred texts — Blaisdell Primer and First Reader; Cyr's Primer and First Reader.

Written Work.

Imitation of teacher in large and rapid movements, usually at board, or with large soft pencil and sheet of paper at seat. First, however, brush used freely in color work.

Writing of children's names, simple words and short statements, drawings of the objects or actions often accompanying the writing. Copying of sentences and rhymes from board. Drill on troublesome letters. Making of figures.

Easy dictation. Filling in elliptical sentences. Spelling.

Use of capitals, periods, question mark.

Music

(*See also* Teachers College Record, *The Speyer School, Part I, p.* 49.)

The work is given in grades — the first three being preceded by lists of song illustrations of what is needed to develop the interest in music as an expression of the child's feeling. The melody and accompaniment tell the same story as the words. The imagination awakened by the words is stimulated and developed by the music. These songs are for the æsthetic side of music teaching, and must be considered illustrative rather than complete, as to number. The classification with reference to grade is rather arbitrary; songs of successive grades might be interchanged, and some with equal propriety be used in a number of grades. As the work advances there is less necessity for rote work, the school music readers and supplemental publications supplying sufficient material at this stage of the work.

Mother Goose, *Elliott.*

Mr. Squirrel, *Neidlinger.*

Feeding the Chickens, *Knowlton.*
The Windmill, *Gaynor.*
Mr. Duck and Mr. Turkey, *Neidlinger.*
Call of the Crow, *Knowlton.*
Dancing Song, *Reinecke.*
Scissors Grinder, *Knowlton.*
The Postman, *Knowlton.*
Tick, Tack, *Neidlinger.*
Singing Games, arranged by *Hofer.*

Rhythm. — Imitation of the rhythmic motions of nature, the swaying of trees, the motions of water; and of occupations, such as those of the blacksmith and cobbler; of games, like skipping rope and bouncing ball. After some freedom has been developed in motions expressive of imaginary states, motions are developed for their own sake, such as the various steps of old dances, bowing, military movements.

Pulses or Beats. — When a number of these steps can be done with exactness, proving that their movement is clear in the thought of the child, he is asked to picture the strong and weak pulses and their groupings into twos and threes by means of circles, described with the hand, — large circles showing the strong beats, and small ones the weak, — not merely of the measure, but also of the phrase. Next, these circles are transferred to the blackboard, the groupings of the strong and weak pulses being represented by variation in their size.

Duration. — When the child has attained certainty in the recognition and picturing of the pulses, not only in plays and dances, but also in songs, so that he can detect two or three-part time in the multitude of the rhythmic grouping produced by the variations in the relative durations of tones, he is ready to commence the most obvious distinctions with reference to relative duration.

The child is first led to notice that in his imitation of movements and in the steps of his dances, as well as in his songs, the motions and tones do not all coincide with the regular pulses he has learned to recognize, that sometimes the motions and tones are faster and sometimes slower, sometimes equal to, and sometimes unequal to the regular pulses. He is then asked to imitate by motions of his hand these varying movements, at the

same time keeping track of the regular succession of pulses, either with the foot or the other hand.

When the general distinction between regular pulse succession and variable duration is clear, one special feature is picked out for special study, such as one long, and two short equaling the long in duration. When by his motions the child indicates that he recognizes clearly this distinction, he is asked to picture it on the blackboard by means of long and short dashes. He then combines these dashes with the large and small circles representing the strong and weak pulses. Very simple songs or sentences are learned and then pictured, the short dashes being put over the proper circle, showing that he has noticed not only that there are short notes, but just where they come in his song. After this, the union of two pulses into one; the division of the pulse into three and four parts; and the dotted pulse and half pulse are taken up in a similar way. First, a simple song or musical sentence is learned as a whole; then some rhythmic relationship is individualized by action, then pictured, after which practice is given in detecting the same relationship in similar songs.

Pitch Relationships. Direction of Melody. — During the previous rhythmic study some attention has been paid to the imitating of the sounds as well as the motions of nature, men and instruments. Using the tubaphone, and imitation of instruments like the drum and whistle used by primitive man, such as Indians or Eskimos, give excellent practice in listening to and describing sounds in connection with descriptive studies. The next step is to define the differences in tones more accurately. The direction of a melody is represented either with the tubaphone or with hand motions, ascending and descending as the pitch rises and falls. These motions are transferred to the blackboard, and the pupil recognizes the outline of the little songs he has been singing.

Harmonic Character of Tones. — But besides this melodic character of tones that may be pictured by up-and-down motions, there is the harmonic character of tones, such as the feeling of the repose on the tonic, and progress on the leading tone. These qualities are pictured by the hand after the tonic-sol-fa method; the closed or open hand representing tones of repose, while the hand pointing up or down indicates progress. Little

sentences are first learned illustrating by words and harmonic tendency the character of the tone studied, and when the child feels the reposeful or progressive character of the tone, the hand picture is given.

Syllables. — This is followed by the syllable name. When step by step the seven tones of the key are learned, each having a distinct character of its own, the pupil is ready for dictation work given with hand signs, to give freedom in using the syllables, backward as well as forward. The simple sentences already learned are now sung by the teacher, while the pupil, pictures the tones sung, with the hand. Thus with blackboard and hand pictures the pitch characteristics of the melodies are individualized and represented. Three methods of tone relationship have been commenced, that of *relative stress, duration* and *pitch,* occupying the first year of analysis work.

Second Grade

(Basis of year's work is Surrounding Occupations, and the Eskimos as Representatives of one phase of Primitive Life.)

Occupations and Primitive Life

Vegetable and fruit garden.

Fall. — Names of products. Preparation for market. Description of work, in first person.

Spring. — Preparation of soil; arrangements of beds; planting of seeds; hot-beds; setting out of plants, etc. Representative vegetables traced from time of planting to time of marketing.

Typical farm.

House, barn and other buildings represented in sand and by blocks. Well. Division into fields; products, fences (boards, rails, wire). Farm life during spring, summer, autumn, winter. Comparison with life in city. Animals on farm, and care of same (horses, cows, chickens).

Dairy farm reproduced in sand and blocks. Life described.

Sheep ranch, with corrals. Life of ranchman.

Typical village.

Reproduced in sand, blocks (clay), with outlying farms indicated.

Principal buildings (post-office, grocery, blacksmith shop, railroad station).

Village house compared with typical house in city, playgrounds, etc.

Streets in comparison with those of city.

Relation of village to surrounding farms, — to city. Advantages of telephone, telegraph.

Eskimos.

Their direction from us.

Appearance of their country. Seasons. Houses — furniture, utensils. Build house of clay.

Dress.

Food. Manner of catching animals.

Weapons.

Modes of travel — sledge, boats, dogs, harness.

Other customs.

The Home.

Ventilation. Method of securing it.

Light; eyes, health, happiness. Sink and dark corners. Best location for apartments.

Sweeping. How to hold broom so as to avoid dust. Use of tea leaves or wet paper. Dark corners, etc. Dusting. Best material for dusters. (Read portion of Autobiography of Booker T. Washington.)

Furniture. Arrangement of same.

Table. Setting same.

Heat. Purpose of thermometer. Proper place to hang it. Reading of it. Effects of too much or too little heat.

These ideas applied, so far as possible, to school-room, committees on care of room being appointed from time to time.

Old frame building.

Examined, and reproduced crudely, with sticks, boards and blocks. Visit both frame, brick and stone buildings under construction. Kinds of material used.

Division of labor.

Lumbering. (Excursion to lumber yard.) Description of forest; camp life. Representation of lumber camp. Transportation; saw mill. Story of a board (very simple outline of facts).

Brickmaking. Briefly described and reproduced. Uses of brick.

Quarrying. Blasting in city. Uses of stone. Visit to piers where stone is imported.

Mortar. Making of same. Uses.

Nature Study

Review and further study of vegetables found in garden and in grocery. Small hot-bed in box in school-room, also early plants raised. Return of life in spring. Germination of pea, bean and, possibly, corn.

Proper care of house plants; actual care of those in school. Protection against insects. Care of house pets.

Manner of raising common fruits — apples, peaches, plums, etc.

Preparation of plants for winter. Of man for winter, in house, clothing. Some study of heating apparatus and of coal. Experiments with coal, uses. Records of weight and height of children. Of animals also. Uses of animals' coverings to man, as skins, wool, furs. Changes of clothing as warm weather approaches.

Pine tree reviewed. Elm tree.

Rabbit (compare with squirrel; rat and mouse reviewed). Further study of cow. Goat and sheep.

Hens and chickens; eiderduck; reindeer; seal; walrus; polar bear. Silkworm and cocoon.

Some effects of heat and cold. Forms of water, etc.

Metamorphosis of cabbage-caterpillar.

Handwork

Woodwork or cardboard, stone, etc.

Pasteboard boxes for seed. Rake. Harrow. Stall and manger. Trough for horses and cattle. Grinding of

corn. Eskimo lamp and sled. Water-wheel and saw-mill. Raft. Top from a spool. Kite. Clock face. Compass, card and needle. Stone arch, showing key-stone.

Sewing.

Dress dolls in Eskimo's style. Sewing bags for grain. Making pan or kettle holder. Clothes-pin bag. Napkins. Needle-book.

Weaving.

Shearing of sheep, washing of wool (raw wool to be gotten at wool factory near by), carding, dyeing, spinning, weaving.

Mats, rugs, baskets.

The loom; rag-carpet. Some study of silk manufacturing with use of cocoon.

Raffia, native grasses or grape vine.

Farm hats; baskets.

Cooking.

Cereals. Dry a few apples.

Washing of dishes (in connection with noon luncheon).

Making actual flour from grains of wheat.

Experiments in purification of water. Changes of food according to season.

Moulding.

Making of real brick. Animals (with coloring later).

Dishes.

Drawing and painting.

Illustrate events described in literature. Trees. Views.

Forms of vegetables and animals (latter in repose and in action).

Mathematics

Counting to 1000. Counting by 5's to 50; by 10's to 100. Common notation to 100. Any combination under 20. Roman numerals to XII. Make a clock-face; tell time by clock.

Measuring.

Inch, foot, yard. (Estimating and measuring width of street; size of rooms; frontage and depth of lots, etc.)
Sq. inch, sq. foot; cu. inch. (In building with blocks, etc.)
Pint, quart, gallon; quart, peck. (In connection with garden truck, grocery, etc.)
Ounce, pound. (Grocery, etc.)
Minute, hour, day, week, month. Reading of calendar.
½, ⅓, ¼, ¾.

Prince's Arithmetic, No. 1.

English

Literature.

The Mountain and the Squirrel.
Æsop's Fables.
Seven Little Sisters. *Jane Andrews.*
Each and All.
Nature Myths and Other Stories. *Flora J. Cooke.*
Heart of Oak Series I, II.
Pied Piper (illustrated).
Persephone.
Philemon and Baucis.
King Midas.
Sleeping Beauty.
Some Greek Myths: Clytie, Apollo and Daphne, Mercury, Æolus, Phæton, Rhœcus.
Story of Four Winds (Hiawatha).
Goldenrod and Aster.
The Little Fir Tree.
Norse Myths: Iduna, Balder.
Raggy Lug.
The Bell of Atri.
Mondamin (Hiawatha).
Stories of Christ Child.
St. Christopher; St. Nicholas.
Story of Agoonack.
Stories told but not developed at any length: Puss in Boots, Aladdin, Jack and the Beanstalk.

Reading.

Child-Life Primer, First Reader, Second Reader, *Cyr.*
Heart of Oak, No. 1.

Written Work.

Large soft pencil used, and large writing encouraged.
Copying. Dictation. Written answers to questions. Short compositions, after class have together formulated the thought. Singular and plural forms. Use of apostrophe to show possession. Very common abbreviations, and use of capitals, as in Dr., St., Mr., Mrs., N. Y., for days of week and month.
Use of hyphen, comma, and exclamation point.

Music

Illustrative Songs.

Blow, Wind, Blow, *Orth.*
Sing a Song of Workshops, *Chadwick.*
The Squirrel, *Patty Hill.*
The Spider, *Neidlinger.*
The Barnyard, *Grieg.*
The Blacksmith, *Gaynor.*
The Miner, *Gaynor.*
Fair Snowwhite, *Reinecke.*
Our Flag, *Neidlinger.*
Kite Time, *Knowlton.*

Notation. — In the second year, while much of the first-year work will be continued, the main work will be to change to the regular notation the pictorial representation which the pupil has closely connected with his tonal feeling. To change relative stress is comparatively simple, the bar with the fraction at the commencement showing the nature of the grouping. Next, to change to the symbols for relative duration. The long and short dashes which have represented these relationships are now associated with quarters and eighths or with halves and quarters, and the pupil connects the length of lines that represented duration with these signs, and learns the essential thing, the relative durations

they represent. So with the other rhythmical points he has learned to picture. Now, the little songs that he has pictured with circles and dashes are represented by their true rhythmical notation. Rhythms of new songs are sung in monotone from the notation.

Third Grade

(*Primitive Life the leading line of work*)

Primitive Life

Story of Ab (cave dwellers, etc.).

Thompson Indians in Canada at present time. (Specially chosen because their habits of life are extensively shown in Natural History museum.)

Direction from here and appearance of their country.

Wigwam, and winter home. Representation of same, with furniture, utensils, fuel, light. Pottery.

Food — how obtained, and how prepared for eating. (Flesh, corn or other grain, beans, pumpkins.) Division of labor.

Clothing — ornaments, etc.

Travelling — roads, etc.

War — weapons; customs in war.

Musical instruments.

Picture writing.

Education — games, etc., of children.

Government. References to our government, including relations of children to one another.

Religion.

Algonquin and Iroquois Indians.

Their houses, compared with those of Thompson Indians.

Other striking points of difference.

Mandan circular house.

Cliff dwellers and Pueblo Indians.

Topics as above, in connection with Thompson Indians.

Homes represented by blocks and in clay.

Customs, etc., reproduced as far as possible.

Indians' knowledge of metals.

Their uses of them.

Our present uses of them.

Robinson Crusoe.

The Great Industries. — Largely review from new point of view. Some comparison with present methods; for example, as to food, clothing, shelter, etc.

Agriculture.

Earliest forms.

Mixed forms — migratory Indians; semi-agriculture; agriculture in true sense of highest type of Indians in North America: their customs in agriculture, and products compared with our own. (Ploughs, domesticated animals, etc.)

Arts connected with food.

Hunting.

Fishing (examples of modern fishing apparatus, seen on Hudson River).

Cooking and preservation of food. Contrast with present methods.

Pottery.

Basketry.

Other ancient utensils.

Modern utensils.

Dwellings.

Earliest forms.

Types, showing adaptation to climate and environment:

Eskimo hut.

Tents.

African kraal.

Log-cabin.

Varieties of modern New York house.

Arts connected with clothing.

Simplest materials — grass, bark, skins, furs.

Dressing of skins.

Development of sewing.

Plaiting of grass, reeds, rushes, fibres.

Development of weaving.

Dyed cloth.

Printed cloth. — Contrast with present time.

Trade and transportation.
- Earliest forms of barter.
- Money.
- Roads.
- First forms of boats.
- Canals.
- First transportation by steam.
  - On water.
  - By rail.
    - Contrast with present time.

Preservation of knowledge.
- In songs, etc., in early times.
- Picture writing.
- Story of the alphabet.
- Printing.
- Making of books. Libraries. (Visit to Columbia Library.)

Rise of æsthetic arts.
- How love of beauty has been shown by all peoples.
- Pictures scratched on bone, stone, etc.
- Sculpture.
- Painting. (Visit to Metropolitan Museum.)

Nature-Study

Life history — from biological point of view — of the great food and industrial plants and of animals, studied in connection with Primitive Life, or prominent in environment.

Food and industrial plants.
- Cereals — fruits — vegetables. Tomato.
- Fibre plants — cotton, flax, hemp. Grasses. Raffia.
- Soft and hard maple. Willow. Birch-tree.
- Fruit-trees — grafting and budding.
- Study of some green-house in neighborhood. Method of raising certain house-plants. Introduction of same into home. Goldenrod.
- Garden work in fall and spring — out-of-doors or in window-boxes.
- Some study of decay, as change, not death; contribution to life of others.

Animals.

How animals prepare for winter: horse, sparrow and robin.

Some study of birds in park, with comparison between their habits and our own.

Principal kinds of fish found in the vicinity.

Earthworm.

Wild animals of North America.

Principles of physics controlling irrigation.

Same applied to water-supply in city.

Power from steam and electricity. Reference to motor power of body, the human machine.

Drainage.

Kinds of food to be avoided, with reasons.

Dangers from impure water, and ways in which it becomes contaminated.

Filtering water.

Care of drinking-cups, towels — individual use of same.

Proper clothing and personal cleanliness.

Weather-records.

Collection of metals.

HANDWORK

Moulding.

Making pottery from clay to represent primitive pottery.

Potter's wheel.

Simple kiln.

Mortar and pestle.

Peace-pipe.

Adobe-brick.

Model adobe-house.

Pueblo, showing ladders, chimneys, trap-doors.

Cliff-dwellings.

Woodwork.

Bow and arrow.

Simplest form of wooden plow.

Fishing apparatus, traps, etc.
Lobster and salmon-traps.
Bone fish-hook.
Fish-weir and primitive fishing-nets.
Modern hook and line, with "fly."
Indian methods of making fire.
Model of canal and canal-boat; sail-boat on river, with sails; earliest form of boat.
Wooden boxes for holding crayons, pencils, nails, tacks.
Building and furnishing a house, using a large box.
Boys do woodwork and upholstery.
Girls do textile work.
Both do art-work — designing — papering.

Cooking, etc.

Cooking of cereals. Rules for care of room.

Drawing and color-work.

Charcoal, brush and pencil used to represent scenes from literature, etc., also for decoration of objects made, as pottery, etc. Totems. Wigwams decorated.

Sewing, etc.

Primitive loom.
Weaving of blanket, rush mats.
Flax; retted, cleaned, spun.
Crocheting.
Moccasins.
Hammocks.
Book-bags.
Pen-wipers.
Cooking-aprons.
Baskets; work-baskets; holders for burnt matches.
Christmas and holiday gifts.
Repairing; buttons sewed on clothing.
Coarse darning.
Strings on blouses.
Work for Grades I and II. Bean bags for bean-bag game; scrap-books; dolls dressed; apparatus for ring-toss game.

Mathematics

Review preceding year's work.

Counting and writing numbers to 10,000 (example, any street numbers).

Roman numerals I to XX.

Multiplication table to 10 × 10, which is as far as the table will be carried.

Game of dominoes.

Measuring.

Mile (number of New York blocks to a mile).

Ton.

Bushel.

Months of year. "Thirty days hath September," etc.

Number of weeks in year.

Meaning of quire.

Use of money (United States).

Operations.

Four fundamental operations in the number space 1-1,000, division being limited to division of one figure.

Geometrical forms.

Right angle, square and rectangle, as met in manual training, basketry, paper-work, etc., are measured (perimeter and area).

Fractions incidentally studied, as ½, ⅔, etc.; and such simple operations as $^1/_2 = {}^2/_4$ performed.

Decimal form of fraction used only in writing United States money.

Prince's Arithmetic.

English

Literature.

Hiawatha.

Stories of Indian Children, *Mary Husted Hall.*

Indian Stories (Origin of Robin, How Robin Got His Red Breast), *Flora J. Cooke.*

Nature Myths and Other Stories, *Flora J. Cooke.*

Robinson Crusoe.

Æsop's Fables.
Selections from Browning.
Story of Palissey (Pottery).
Seven Little Sisters. (Modes of life determined by environment.)
Stories of Great Artists.
Stories from Hawthorne's Wonder-Book.
Poems by Stevenson, Sherman, Field, Whittier, etc.
Alice in Wonderland.

Reading (by children).

A large amount of reading from numerous readers and from story-books.

Written work.

Much attention to position and movement. Dictation. Short compositions, after the thought has been formulated; also short compositions, with mere outline suggested by class. Paragraphing and punctuation.

Addresses of children. Difference between common and proper names. Singular and plural number of common nouns. Most common diacritical marks. Use of apostrophe in contractions.

Reproduction, in writing, of thoughts from nature-study, and from stories. Much attention to construction of sentences and selection of words.

Music

Illustrative songs.

The Postillion, *Taubert.*
The Firemen, *Nevin.*
The Blacksmith, *Neidlinger.*
Spinning Song, *Reinecke.*
The Family Drum Corps, *Knowlton.*
The Stork, *Rheinberger.*
The Woodpecker, *Nevin.*
The Snowman, *Hallig.*
The Wind, *E. Smith.*
The Mill, *Nevin.*

Staff Representation. — The third-year work takes up the last and most difficult part of notation, that for pitch relationships. The plan followed is the same as that in rhythm. The first step, the observation of the tonal effect and the association of it with a picture that suggests this effect to the mind, has already been accomplished in the second grade. In this grade the regular notation will be substituted for the picture, in such a way that the notation, starting with a blackboard picture, will lead to its correct notation. A very simple melody between two tones a whole step apart is selected; the letter G being put for the lower curves, and A for the upper curves of the picture. As the curves sweep up and down a number of times between these tones, a line is drawn through the lower letter, so that the curved outline of the melody touches first the line and then the upper letter. The pupil learns that the line stands for the lower tone, and the space above it for the upper tone. The notation for rhythm is now put at the places where the letters come, and the connecting curves are erased. The pupil has now the true notation of the song, with a partially developed staff. The rest of the staff is gradually developed as the line G and space A were. Only the first melody needs to be limited to two degrees of the staff. As the knowledge of the staff increases, so the tones in the melodies, care being taken that where the letters E F and B C are given, the tones of the melodies shall be but half-steps apart, so that, at the very outset, these letters and lines and spaces shall always suggest half-steps.

The melodies used are so written that they may be used in two keys; that of C and F for those employing the upper tetrachord, or half of the scale, and C and G for the lower tetrachord. Enough variety of key is thus obtained, without the use of sharps or flats, until the staff marked by the G clef is thoroughly learned. Then the effect of the F♯ and B♭ upon the staff is taught by the attempt to represent a melody which requires both the seventh and fourth of the scale, after which it is transposed to the keys of G and F. Thus the necessity of the sharp and flat is learned, while seeking to indicate the correct notation. The pupil learns the staff practically as it was originated in the Middle Ages, and learns at the very commencement to make those distinctions with reference to it that are fundamental to its intelligent use.

Individual Work. — Along with this work much individual

practice is given in writing down the original melodies, composed in connection with the æsthetic work of the first division; taking up either the simplest of them, or making new ones that will not be too difficult to write at this stage of progress.

Much individual practice is also given in making little rhymes and melodies. These have to be sung enough times by the pupil, to make sure that he has a definite sequence of tones in mind. The notation of these melodies is worked out in class. The work is confined to very simple sentences, which the pupils write down.

Fourth Year

History

Homeric Greeks (Odyssey). Use of globe for location of Greece, with reference to New York; also use of sand.
Agricultural and pastoral life.
Domesticated animals.
Smelting of iron-ore, and uses of metals.
Homes and home industries (weaving particularly).
Mythology.

Later Greeks, particularly Athenians.
Art at time of Pericles. (Splendor of city, present ruins, pictures.)
Greek religion, and oracle at Delphi. (Death of Socrates.)
Greek, especially Spartan, habits of life, with application to health habits of present time.
Olympic games.
Alexander (biographical treatment).

Hebrews. — Globe and sand.
Abraham, Isaac, Jacob and Joseph. Exile in Egypt.
Moses — wanderings of Israelites; ten commandments.
Saul, David, Solomon (division of kingdom).
Birth of Christ. Story of the Christ-child.

Romans (*Italians*). — Globe and sand.
Conquerors of Athens and Greece.
Relation to Jews at time of Christ.

Extent of empire — roads (paved). Neighbors — our ancestors.
Ruins of Forum (pictures) — noted events there.
Education of Roman boy.
Ruins of the Coliseum (pictures), and the uses to which it was put (persecution of Christians).
A few biographies — Regulus; Julius Cæsar.
Inroads of barbarians — Goths; Huns. Downfall of Rome.

Middle Ages. — Globe and sand.
Chivalry.
Crusades.

Discovery and exploration.
Supposed shape of earth — Ptolemy's view; Mela's view. Present knowledge about it.
Study of globe — careful location of continents.
Relation of Europeans to East Indies. Routes travelled. Why new route was wanted.
Progress made in attempt to sail around Africa.
Columbus — his early history.
The Cabots. Vasco da Gama. Magellan. Vespucci. Ponce de Leon.

GEOGRAPHY

Topography of region about the Speyer School, within a radius of from ten to twelve blocks, represented in sand.
Most important streets — highest points and main slopes.
Principal points of interest located. Directions.
Places where there is no soil — where it is shallow — where probably very deep.
Origin of this soil — its uses — fertilization. — Read *Tarr and McMurry* Series of Geographies, volume 1 of five-volume series, chapter on "Soil," page 1.

Map of above section drawn from observation of sand-map (not exactly according to scale).
Distances.
Directions on the map when lying on floor, with north side toward north.
Directions on map when it is hung up.
Drawings of maps to scale. — *Tarr and McMurry,* "Maps," page 102.

Slate-relief map of Manhattan Island and vicinity. Reproduction in sand. Points of interest — direction from one another — distances.

Highest points and principal slopes. Hills and valleys. Origin of hills and valleys. Drainage, divides, etc., traced on relief map. — Read *Tarr and McMurry,* "Hills" and "Valleys," pages 10 and 28.

Old streams here partially traced. Work of streams. — *Tarr and McMurry,* "Rivers," page 39. Course of Hudson River traced on large map; source, Adirondacks and Catskills; other places of interest along river; harbor at mouth. Term island, peninsula, etc. — *Tarr and McMurry,* "Ponds and Lakes," page 53.

Appearance and life of typical village recalled.

Comparison of village with this section of our city, as to quantity of shipping, nature of roads, etc.

Excursion to river front near our school for observation of kinds and quantities of goods shipped there. Location on large map of places from whence many of them come.

Study of piers and buildings for storage. — *Tarr and McMurry,* "Industry and Commerce," page 81.

New York harbor — with relief map of same.

Size; points of interest; depth of water; size of largest ships; location of piers.

Lighthouses; life-saving stations — emphasizing importance of human life, and subordination of one life to others. — *Tarr and McMurry,* "The Ocean," page 62.

Why New York is a great city. — By use of globe, show favorable location of harbor, with reference to various parts of world.

Name articles of food, clothing and shelter shipped in here (to grocery, bakery, shoe-shop, paint-shop, factories, etc., in our vicinity) from different parts of United States. From different parts of world. Locate these places.

Likewise locate countries from which foreign inhabitants of the city have come.

Population of city. Residence section; wholesale section (meaning of wholesale); factory section.

Roads. Condition of roads before time of settlement. Kinds of roads now. How built, and sources of the materials. How kept clean.

Light. Sources of light — sun; moon; artificial light. Best kind and arrangement of light when reading.

Water supply.

Government. — Read *Tarr and McMurry,* "Government," page 92.

Mayor, and Departments of Police, etc.
City Hall.

NATURE-STUDY

Plants.

Collection of spices, and some study of their growth. Location of countries from which they come. How the spices were formerly used; how now.

Names of common trees, and leading characteristics. Type study of oak. Woods examined that are used for interior of houses, and for furniture (precious woods). Collection of woods.

How common berries are raised: strawberries, raspberries, blackberries, cranberries.

Common wild flowers of this vicinity: narcissus, iris, sunflower (introduced in Greek mythology).

Animals.

Crayfish; frogs and toads.

Wild animals formerly found within a hundred miles of New York.

Wild animals of North America, such as can be seen in park or in museum (an excellent collection in Museum of Natural History).

Similar study in park of animals that come from foreign countries.

Atmosphere.

Amount of fresh air needed for one person. Ways in which air becomes contaminated.

Methods of ventilation; in school-building, at home, etc.

Proof that air is something.

Cause of wind.

Evaporation; rain, snow, etc.
Weather observations.
Tarr and McMurry, "The Air," page 71.
Experimental work with lime, cement, asphalt, etc.

HANDWORK

Wood-work.

Viking ship; common sail-boat; galley; chariot; compass.
Block-building.
Greek house; temple.
Boxes for collections.
Toy-furniture and furnishings for lower grades.
Roller and towel.
Weather-vane.

Modelling.

Model of castle, with moat, drawbridge, portcullis, etc.
Dungeon.
Mediæval weapons.
Modern fort.
Modelling of human figures, etc., in clay.
Section of a modern paved road.
Coliseum.
Modern ship.
Pyramids of Egypt.
Grecian lamps and other utensils.

Color-work and drawing.

Illustrative sketches in water-color, ink, crayon, pencil.
Drawings of objects studied.
Valentines.
Flags and coats-of-arms of countries often referred to.
Designing book-covers.

Sewing.

Cooking-aprons; sleeves; carpenter aprons; bags, etc.
Gymnasium skirts.
Flags of England, Spain, etc.
Dressing dolls for lower grades; also in Greek and Roman costumes.
Holiday gifts.
Patching and darning real garments.

Cooking.

The more difficult cereals.
Boiling eggs; other methods of preparing eggs.
Potatoes — boiled, baked, etc.
Tea; coffee; cocoa.
Preparation of wholesome school-luncheon.
Preparation of a simple breakfast and supper.

Mathematics

Review preceding year's work.

Number space, 1 to 1,000,000 for reading and writing, and for operations. Roman numerals to M.

Tables through 10's constantly reviewed.

Aliquot parts, —

$1/2 = .50 = 50\%$	$1/5 = .20 = 20\%$
$1/4 = .25 = 25\%$	$1/10 = .10 = 10\%$
$1/8 = .12\frac{1}{2} = 12\frac{1}{2}\%$	$1/3 = .33\frac{1}{3} = 33\frac{1}{3}\%$

Tables of denominate numbers systematized and learned, as follows: —

Length.

12 in. (12″) = 1 ft. (1′)
3 ft. = 1 yd.
5½ yds. or 16½ ft. = 1 rd.
320 rds. or 5280 ft. = 1 mi.

Surface.

144 sq. in. = 1 sq. ft.
9 sq. ft. = 1 sq. yd.
30¼ sq. yds. = 1 sq. rd.
160 sq. rds. = 1 acre.
640 acres = 1 sq. mi. or section.

Measure off (approximately) 1 acre, and also either a 20-acre or a 40-acre plot in the neighborhood, to be used frequently as bases for measurement.

Capacity.

LIQUID	DRY	CUBIC
4 gi. = 1 pt.	2 pts. = 1 qt.	1728 cu. in. = 1 cu. ft.
2 pts. = 1 qt.	8 qts. = 1 pk.	27 cu. ft. = 1 cu. yd.
4 qts. = 1 gal.	4 pks. = 1 bu.	

A cord of wood explained.

Weight.

16 oz. = 1 lb.
2,000 lbs. = 1 ton.

Operations.

Problems in reduction of compound numbers to involve not more than two steps, as yards to feet and feet to inches, and usually only one step, as inches to feet, or days to weeks.

Short division, with divisor only through 10.

Long division.

Fractions.

Addition and subtraction of common fractions, generally with one figure in each term. Only incidentally are simple cases of multiplying or dividing fractions by integers introduced. Sufficient work in factoring to allow reduction of relatively simple fractions to lowest terms. This includes tests of divisibility by 2, 3, 5, inductively presented.

Business forms.

Simple forms of bills as used in retail trade.

Oral work.

Special drill in fundamental operations. Keeping of personal accounts. Simple geometry, involving names of common figures and areas of rectangles as called for in other work.

English

Literature.

a. To be read in part by class; in part by teacher to class.

Odyssey.

Ulysses among the Phæacians.

Adventures of Ulysses, *Lamb.*

Norse Myths.

Indian Myths.

Stories of Crusaders.

Wonder-Book.

Tanglewood Tales.

Old Testament Stories in Scripture Language.

Jungle Stories.

Wild Animals I Have Known.

Ways of Wood-Folk.

Kingsley's Greek Heroes.

King Arthur and His Court.

Selected poems from works of Longfellow, Lowell, Tennyson, Field, Stevenson, Sherman.

b. To be read by children.

Hiawatha.

Nature Myths, *Cooke.*

Nature-Study Reader, *Wilson.*

Stepping-Stones to Literature, *Arnold and Gilbert.*

Written Work.

Numerous short compositions, both reproductions of stories and original productions.

Letter-writing. The sentence; quotation marks; common abbreviations and contractions; indentation.

Use of pronouns; may and can; comparison of adjectives.

Spelling from dictation. Use of dictionary introduced.

Most of the desirable topics are found in Woodley's "Foundation Lessons in English," book 1, part 1.

Music

(*For illustrative songs, see pages 29 and 37.*)

Sight Singing. — The fourth-year work continues the reading work of the third; the range of keys is extended to the four

sharp and four flat keys with their relative minors, and the changes that indicate the modulation to the key either of the dominant or relative minor. By this time the pupil has a fair degree of musical feeling, associated with notation. He also has his æsthetic sense somewhat developed, so that well-chosen simple songs interest him. Thus it is possible in much of his work both to develop his æsthetic sense and to give practice in sight-singing at the same time. Much of the previous analytic work will now be unnecessary. The new material will more and more consist of combinations of musical effects, such as intervals of duration and pitch, the practice now being to perceive rapidly from a glance at a whole passage, how it should sound.

Fifth Grade

History

Review of explorations previously studied.

Explorers.

Cortez.
De Soto.
Raleigh.
Drake.
Work of discovery completed. (McMaster's Primary History of U. S.)

Colonization.

The Dutch in New York.
The Dutch in Holland. Hudson's report of the country. Dutch settlement here. Organization of colony. Part of island occupied (Bowery the main residence street). Trade with Indians. Patroons. New Amsterdam becomes New York. Reasons. (Excursions to points of local interest.)
The English Plymouth Colony.
Exile in Holland. Voyage. Early history here.
Virginia Colony.
Character of settlers. Contrast to Plymouth later. John Smith. Indians. Development of agriculture and trade.

Wholesome habits of life of the colonists that are worthy of commendation and imitation.
Other settlements of the English.
The Spanish in America.
The French in America.
(McMurry's Pioneer History Stories.)
History of our country to 1776.

Geography

Form and Size of the Earth; its movements; zones; form of continents and of oceans. North America and United States. Principal foreign countries. Great trade routes. Chief text, *Tarr and McMurry,* Vol. II, The Earth as a Whole. A more intensive study of North America to begin in last part of year, with use of *Tarr and McMurry,* Vol. III, North America, Sections I, V, VI, VII.

Nature Study

Plants.

Type Study. Corn, tobacco, coffee, tea. Common weeds, as burdock, ragweed, milkweed, thistle, dandelion. Study of common flowers continued from fourth year. Cotton. Sugar cane.
Effects of frost on different kinds of plants.
Comparative study of the flora of different sections, —
About New York.
In Florida.
On the prairies.
In forest region.

Animals.

Fur-bearing animals. Oyster, clam, whale, crayfish, lobster. Common birds. Animal movements. Coverings of animals and uses of same for human clothing. Effects of cold on animals, including man. Ways of taking cold; also, of avoiding colds.

Observation of heavens.

Position of sun; moon and its phases; certain stars.

Other topics.

Study of barometer. Study of heat by conduction and convection. Applications to heating and ventilating. Vital heat of the body, and methods of conserving same. Evaporation; loss of body heat through same.

Hand Work

Wood, clay, etc.

Representation of New England farm in early times. Of southern plantation.

Model of a coal mine as common in Pennsylvania, with homes of miners.

Canal lock. Cotton gin. Windmill.

Processes of interest to colonists, as bleaching, dyeing (fast and fleeting colors); soap and candle making; making of cider, vinegar and yeast. Making of rag carpet.

Washing.

How often to change clothing of person; bedding. Best soap, — effect on hands, clothing. (Experiment.)

Ways of washing different materials;
Cotton goods, woolen goods.

Drying; wringing; how to hang up different articles of apparel; clothes-pins.

Importance of air and sunshine for clothes.

Ironing.

Repairing.

Patching, darning.

Emergency box and supplies.

Flannel bag, bandages, absorbent cotton, making and use of mustard.

Crocheting.

Washcloth, bed-room slippers.

Color work and drawing.

Natural scenery and illustrative drawings in water-color, ink, crayon, pencil. Designs for wall paper, etc. Drawings of animals and other objects studied.

Domestic Science

(One half year.)

Preparation of common foods. Care of a home.

Mathematics

Compound numbers. — Drill on preceding tables with reductions "ascending" and "descending" confined to numbers of not more than three denominations; generally only two denominations.

Fractions. — Reduction of common fractions, usually of a single figure for denominator, and not more than two or three at a time. Much of the work in reducing fractions formerly dealt with fractions little used in commercial life. Recently, decimal fractions have come to be extensively used in place of common fractions, as in scientific and monetary computations. In consequence of this fact common fractions should receive less attention than they did a generation ago. Factoring may be limited to the ability to detect the factors 2, 3, 5, 9, 10.

The subject of greatest common divisor may well be omitted as a separate topic, because fractions formerly requiring the use of such divisors are now commonly reduced to the decimal form before operating.

There is somewhat more need of least common multiple as a separate topic, since it is necessary for finding the least common denominator of several fractions, and the addition and subtraction of common fractions is still very important within certain limits. But the factoring method is sufficient for the purpose.

Decimal Fractions. — The four fundamental operations, the number of decimal places to right of decimal point being usually limited to *three.*

Business forms. — Work of previous year continued. Bills and receipts written; meaning of terms "debit" and "credit," and examples of use.

Oral work. — Special drill in adding columns of figures with view to accuracy and fair degree of rapidity; also in other fundamental operations.

Geometry. — Area of square, parallelogram, circle, and contents of some solid bodies. This work confined to the needs that arise in sewing, manual training, etc.

English

Literature.

Tanglewood Tales.
Wonder Book.
American Poets.
Water Babies.
King of the Golden River.
Gulliver's Travels.
Lays of Ancient Rome.
Knights of the Round Table.
Docas, the Indian Boy of California.
Boys of '76.
Old Times in the Colonies.
Stories of American Life and Adventure.
Child Life in Colonial Days.
Home Life in Colonial Days.
Heroes of the Middle West.
Knickerbocker's History of New York.
Guerber's Story of Thirteen Colonies.
Pratt's Colonial Children.
Squirrels and Other Fur-Bearers.
Stepping Stones to Literature. Vol. I.

Written Work.

Composition, frequent but short. Special attention to paragraphing; practice in outlining (suggesting number of paragraphs and relative importance of thoughts) whether the details are written out or not. Letter writing. Analysis of sentences, and such facts of technical grammar as are daily needed in correct speech. Written spelling (oral also).

Much use of Woodley's Foundation Lessons in English, Book I, Part II.

Music

The fifth-year work develops rapidity in thinking what the notation calls for. It is eye-training in connection with sound thinking. As the time element is perhaps the most important factor in the production of music, hesitation in conceiving what the notation calls for destroys the result, however correctly it may finally be done. Hence the necessity of conceiving the effect indicated by a given notation, in advance of any demands on the time to be apportioned to the different tones of the passage. Quickness of perception thus becomes of vital importance in the sight-singing processes. Two ways are followed in getting this result; first, a mechanical one. A musical motive or phrase is covered. When the class is ready, it is exposed to view for a few seconds; the class then reproduces the passage both with tone and with notation. The subject matter is taken up somewhat as it was first given out in the earlier grades. First the notation for pulse grouping, then relative duration, then relative pitch, then the combination of all three, from extremely simple to more complex passages. The second way is structural, and is developed with the first. The student is taught to observe passages harmonically, instead of as single notes — the chords underlying the passage rather than the scale. The chords of a musical passage are somewhat like the steel frame of a modern building, while the scale passages are the wall filling, sometimes with openings from chord tone to chord tone, and sometimes with filling in of all the space between. The work in this grade is very elementary, consisting of the observation of tonic and dominant chords, their tonal effects being already familiar because the characteristics of the tones which constitute them as tones of repose and progress have been learned. This work is not only of the highest importance for sight reading, but it lays a basis for building up a knowledge of music in a practical way, the lack of which is sorely felt in institutions where musical theory is taught; for this is elementary work, and cannot be as well done in later life. This power to grasp a passage as a whole is a peculiar ability, but it rests on the solid basis of first knowing accurately what the notation indicates. The study thus becomes more artistic on all sides, as befits the study of an art.

III. PRACTICAL WORK FOR UNDERGRADUATE STUDENTS OF TEACHERS COLLEGE

By F. M. McMURRY

Relative Importance and Difficulty of Practical Work

The practical work undertaken in the Speyer School, including observation, teaching, and any other work bringing students into direct contact with the children, is a regular part of Teachers College courses, and is believed by the faculty to be fully as important as class-room work in the College. Indeed, the application of the theory of teaching is so difficult, and so important, that special emphasis is laid upon such work. In case of unavoidable conflicts in hours between it and other college courses, it is given the preference, according to a rule of the faculty. This is merely an expression of the marked tendency in modern education to add practice to theory in any line of study, and, when it comes to the training of teachers, to secure first-hand knowledge of children by immediate contact with them.

Much of the practical work is necessarily more taxing than most other kinds of college work, because it not only requires a large amount of study, but is accompanied by a peculiar nervous strain. The latter is due to the strangeness of the position, the difficulties of government, the presence of critics, etc. Students are, therefore, cautioned to reserve for practical work a special amount of time and energy, and no one is allowed to undertake practice teaching in more than two college courses during any one year without special permission.

In order that it may be known that these conditions are fulfilled, every student having duties in the Speyer School is requested to *file his full program* of college courses with the Principal of the Speyer School, not later than November 1 in the first semester. These programs will remain on file at the Speyer School, for inspection by the regular teachers. On the back of this card should also be found (a) the number of years of

experience of the student in teaching (if any), and (b) the positions held.

Length of Time Required for Practice Teaching

In receiving assignments for practical work in the school, only *one* date is given, namely, that for beginning the actual instruction. The minimum number of recitation periods expected is fifteen. But it is important to remember that this is only the minimum number; the actual number for any particular student will usually be more, and will vary according to the skill shown, the nature of the topic presented, etc. One student may teach twice as long as another; and in some cases, with the consent of the head of the department concerned, other work in that methods course of which this teaching is a part, may be sacrificed for the sake of a still longer period of practice teaching. In this sense the methods courses of Teachers College are made flexible for the purpose of meeting individual needs. The critic teacher in charge, together with the head of department concerned, shall determine the length of time any student shall give instruction.

Number of Subjects Required

Usually more than one subject will be required of one student at a time, as for example, Reading and Spelling, or Nature Study and Composition. At times, if a student's program allows it, he may be asked to take full charge of a room during a large part, or the whole, of the forenoon or afternoon session, for a week or more.

Method of Assignment

(*a*) All assignments for work in the Speyer School should be completed prior to November 1, for the first semester, and prior to February 20, for the second semester.

(*b*) As far as possible, students so desiring may work in pairs. Each should find some congenial co-laborer, therefore, and when the groups of twos are called for by the head of department concerned, the two names should be presented together. Otherwise the head of department himself will pair the student as best he can, or leave them to work separately.

(*c*) Preferences of students as to grade, studies, and time of year when the instruction is to be given, will be observed as far as possible. Each pair, therefore, should agree upon a first and second preference both as to grade and branches of study, taking care to select studies that come in the Speyer School program at hours that are free for them. They should also agree upon a preferred season of the year. These preferences should be stated in writing, and handed in when called for. Copies of the grade programs can be obtained at the Speyer School, or at the office of the head of the department giving the methods course concerned.

(*d*) Every instructor of a methods course that requires practical work in the Speyer School will have prepared a list, as early as possible in each semester, of all students in his course who are to undertake practical work in that school. These lists will be in the keeping of Miss I. L. Pratt, Secretary of the Appointment Committee (Room opposite Registrar's office at Teachers College). All Statements of preferences will also reach her, and the names should correspond in full with the lists previously received. Official notice of assignment will be issued by Miss Pratt; her records are final, and any further communication about assignments should take place through her.

The final schedule of assignments for each semester will be posted, as early as possible, on the bulletin board of the Speyer School and of Teachers College.

Study of Speyer School and Its Environment, Preparatory to Teaching

Before beginning actual instruction, students are expected to post themselves in regard to the following four topics:—

(*a*) *General Characteristics of School and Environment.*— To acquaint themselves with the general *characteristics of the school* and *its environment.* This can be accomplished by studying pp. 13-44 of the November Number of the Record, visiting both the school and surrounding points, and talking with the teachers and others connected with the school.

(*b*) *Names and Characteristics of Children.* To learn the *names and characteristics of the particular class* to be taught,

observing which children are (1) physically defective; (2) physically active or quiet; (3) energetic or lazy in work; (4) eye or ear minded; (5) quick or slow mentally; (6) deft or clumsy with the hand; (7) thorough or superficial; (8) reliable or unreliable in judgment; (9) neat and orderly, or careless; (10) assertive and independent, or timid; (11) leaders or followers among companions; (12) inclined toward isolation, or to membership in cliques; (13) having decided interests, as taste for reading or for the beautiful; (14) honest, or inclined toward deception, and otherwise troublesome.

Observations for these purposes can be made at the school at any time. Free play periods are particularly recommended.

(*c*) *Curriculum.* To familiarize themselves with the leading features of the *curriculum* for the entire school, to examine in detail the curriculum of the particular class that is to receive instruction, and to note the *relations* of the chosen branch or branches to the other studies pursued by the class. For outline of the curriculum see pp. 12-59 of this number of the RECORD.

(*d*) *Materials.* To learn what *materials,* as books, paper, pencils, chalk, pictures, clay, tools, blocks, etc., are at the disposal of the class (see TEACHERS COLLEGE RECORD, Speyer School, Part I, p. 29), and the exact *location* of each. Also to note the best *management of the room* as to heat, light, draughts, etc.

In addition to the above, students should be ready to give assistance, if called upon, in (1) care of room; (2) correction of written work; (3) collection and distribution of materials; (4) the helping of individual children, and (5) excursions. They are liable to be called upon to determine the defects of certain children, to propose and apply a remedy, and to report on its success. This work may extend over a period of several weeks, and may in some cases be accepted by the critic teacher as a substitute for other teaching.

Students are expected to investigate the four items above named (*a, b, c, d*) sufficiently well to pass an examination upon them, before being allowed to begin instruction. This examination will be oral or written, and will be given by the critic teacher in charge of the class. If written, the plan-book itself (p. 64) may be used for the purpose, so that the questions and their answers may be preserved as a permanent part of a student's record of work in the Speyer School.

Students working in pairs should utilize the opportunity of making their observations together and comparing impressions. For this purpose they may well begin three or four weeks before the date fixed for their instruction, and proceed in any way that seems to them best, remembering that the critic teachers are always ready to answer inquiries or give suggestions. There is no objection to reserving a shorter period for this work, provided one sets aside a larger amount of time each day for it. The worth of the results reached is to be tested in the examination; and, unless the latter is satisfactory, the proposed instruction will be postponed.

Plan for Lessons

When students work in pairs neither will know until the first recitation is to begin which will give the instruction, or which will continue it as new topics are introduced later. Consequently, each will find it necessary to have his own plan-book and to prepare the suggested work in full.

(*a*) Each student is expected to provide himself with a plan-book, eight inches by ten inches, costing about twenty-five cents.

(*b*) The principal topics to be presented will be named by the regular teacher in charge of the class concerned.

(*c*) The main features of the lesson plans desired are suggested in the following treatment of the poem Excelsior.

EXCELSIOR

The shades of night were falling fast,
As through an Alpine village passed
A youth, who bore, 'mid snow and ice,
A banner with the strange device,
Excelsior!

His brow was sad; his eye beneath
Flashed like a falchion from its sheath,
And like a silver clarion rung
The accents of that unknown tongue,
Excelsior!

In happy homes he saw the light
Of household fires gleam warm and bright;
Above, the spectral glaciers shone,
And from his lips escaped a groan,
Excelsior!

"Try not the Pass!" the old man said,
"Dark lowers the tempest overhead,
The roaring torrent is deep and wide!"
And loud that clarion voice replied,
Excelsior!

"O stay," the maiden said, "and rest
Thy weary head upon this breast!"
A tear stood in his bright blue eye,
But still he answered, with a sigh,
Excelsior!

"Beware the pine-tree's withered branch!
Beware the awful avalanche!"
This was the peasant's last Good-night.
A voice replied, far up the height,
Excelsior!

At break of day, as heavenward
The pious monks of Saint Bernard
Uttered the oft-repeated prayer,
A voice cried through the startled air,
Excelsior!

A traveller, by the faithful hound,
Half-buried in the snow was found,
Still grasping in his hand of ice
That banner with the strange device,
Excelsior!

There in the twilight cold and gray,
Lifeless, but beautiful, he lay,
And from the sky, serene and far,
A voice fell, like a falling star,
Excelsior!

SUBJECT: EXCELSIOR

Criticisms of Subject Matter

Subject Matter

Simple narrative — taken literally.
Meaning of difficult words and phrases.

Leading facts in literal story.

Interpretation.
Longfellow calls the young man "beautiful," and, in last two lines, suggests his ascent to heaven.
Story figurative.

AGE OF PUPILS. 12-13 years (6th year of school)

Teacher's Principal Aims:

(*a*) Enjoyment of a well-known poem, — hence, increased love of good literature;

(*b*) Appreciation of a certain moral thought, i.e., importance of a lofty aim in life, with unhesitating pursuit of same.

Method of Presentation

Criticisms of Method

Pupils' Aim:

To learn what became of a young man who attempted to climb the Alps.

Describe a lofty mountain. What are some of the dangers that one might expect to meet in climbing it? How do the monks come to aid of mountain-climbers?

Read the poem, stanza by stanza.

What is meant by —
device?
falchion?
clarion?
spectral glacier?
awful avalanche?
startled air?

Read the poem through carefully a second time. Describe the region. Tell the story.
Was the young man joyous, or sad?
Read answer in words of author (verses 2, 3, 5). Was he attractive or unattractive in appearance? (v. 2, 5, 9.)
What things tempt him to abandon his journey? (v. 3, 4, 5, 6.)
Did he stop? What became of him?

Do you see any good reason why he should not have stopped?
Was he, then, a foolish fellow? Or, a rash adventurer?
What is Longfellow's opinion of him, in the last verse? How explain such approval?

Criticisms of Subject Matter

Subject Matter

The mountain signifies a steep road, the route necessary for an unselfish life. The happy homes and the three persons signify types of temptation, or of over-cautious advisers.

Striking qualities of the young man are unselfishness, courage, determination, energy.

All efficient persons, with high ideals, should show these same qualities.

Style. Diction — beauty, force.

Good oral reading.

Method of Presentation

Criticisms of Method

Since the story is not to be taken literally, let us see how it should be interpreted.

What is signified by the mountain? By the happy homes? By the old man? By the maiden? By the peasant?

Why is the device spoken of as strange? The tongue, as unkonwn?

Meaning of "Excelsior"?

What are the striking qualities of the young man? How shown?

How was a motto of value to him? Reason for frequent repetition of "Excelsior"?

Describe in full the kind of person the author seems to admire. Have you ever known, or heard of such persons?

Washington. Lincoln. Other persons, in history? In present time?

Do you think that every good person should exercise these same qualities? Proof?

Does this poem encourage recklessness? Proof? At what times do we most need to recall it? What are the advantages of possessing a high ideal? How is it helpful to have a motto?

Find some happily chosen words.

Which stanzas show the character of the youth most forcibly, in your opinion? Which seem to you most attractive?

What precautions, if any, would you suggest for the proper reading of the poem aloud? Read it aloud.

Characteristics of the Plan Desired

1. The first requirement of the plan desired is the *complete separation of subject matter from method;* the space on the left-hand page should be devoted *solely* to subject matter, that on the right, *solely* to method.

The primary reason for this complete separation of two very different kinds of matter is that it is necessary, in preparing a good plan, to think subject matter through independently of method, and, indeed, *before* method is considered. It is very common for teachers to begin determining their method of presenting a topic, before making sure that they know the facts which are to be taught. And when subject matter and method thus become mixed, teachers are not easily made conscious of their ignorance of facts. Their method, too, is then seriously affected; one reason for much bad method being that the facts to be taught have not been clearly conceived. These statements apply as much to grade work as to more advanced instruction. Students are urged, therefore, to make themselves masters of their subject matter, to practice outlining it for that purpose, before seriously considering the manner of its presentation.

An additional reason for this clear separation in the plan is the fact that a critic teacher, or other supervisor, can see at a glance the instructor's outline of fact and of method.

2. The statements on the left-hand page should constitute an outline of the facts to be presented, in *close sequence,* and convey *full meaning* when read without reference to the right-hand page. The statements on the right-hand page should likewise show the outline of method, in *close sequence,* and carry *full meaning* when read independently of the left-hand page.

The matter on the two pages can frequently be so placed that the facts on the left will have their method of presentation directly opposite to them on the right. This arrangement should be followed as far as is possible.

3. As a rule the outline of method should consist of an outline of the teacher's part in the *actually anticipated conversation* between teacher and pupils. The principal questions and statements of the teacher, and the replies from the children — when the latter seem necessary, which is seldom the case — should therefore appear here in the form of *direct discourse.*

The reason for this requirement is seen in the fact that such a conversation must actually take place during the recitation period, and this is the nearest equivalent to the real thing as a preparation. To be sure, one cannot with certainty foresee the turns that a conversation may take; but if he has thought through its most probable course with care, meanwhile considering its possible deviations, he is far more a master of the situation than otherwise; far more ready for the unexpected. A carefully considered plan is the means of securing freedom to follow any one of several courses, in other words, to adapt oneself to the needs of pupils.

This requirement applies more fully to "development lessons" than to recitations in which the time is occupied mainly with laboratory experiment; or translation; or written work at the desk or at the board; or construction, as in manual training, fine art, domestic science, and domestic art, where the pupils' plan has already been completed and further help from the teacher is individual. It applies still less to the supervision of study hours, library readings, etc.

Nevertheless, a well developed plan of procedure is desirable in all such cases, and there are always the two factors involved, namely, *subject matter,* in the form of facts that are to be put before the pupils collectively or individually, and *method,* or the manner of presenting these facts. Usually, too, if a teacher is properly acquainted with his subject and his pupils, he can anticipate what points will need particular attention, in what respects they will cause difficulty, and how these difficulties may best be met. For example, an instructor in composition in the fourth year of the elementary school, or in the high school, should foresee important difficulties to be encountered by his class and the remedies; and this is true even though they be writing on various topics. Close sequence in the subject matter of such a plan and in steps of method is likely to be wanting, to be sure, and possibly other characteristics here suggested; but conversation or directions will be called for, centering usually about a certain few points, and to the extent that this is true, a plan is needed, approximating the form here presented.

Students who are assisting the regular teachers by instructing only one or two children, have the same need for plans as other instructors; indeed, if two such children are doing very

different kinds of work, it will often be necessary to prepare separate plans for them.

4. *Careful paragraphing* of statements, questions, etc., with proper *indentation* to indicate *subordinate relationship,* is as necessary here as elsewhere. In fact, it is particularly important that persons preparing to teach should acquire the habit of grouping related thoughts and recognizing their relative values. Consequently the plans, both of subject matter and method, should indicate clearly, by the form on the page, what the chief topics are and what matter is of minor importance. This is only a preparation for bringing the children to appreciate exactly the same kind of relationships — which is one of the important objects of instruction.

Students allowed to use the terms "preparation," "presentation," "application," etc., in their plans, have been found, very often, to paragraph on the basis of such headings. But these are psychological terms; they are not to be heard in the actual recitation, and have little to do with the paragraphing of the thought from the point of view of the child. As a rule, therefore, they should be omitted in the plan. If, however, they sometimes seem necessary for the better comprehension of the plan by critic teachers or other supervisors, they might be included, but enclosed in parentheses and given a subordinate place on the page.

5. Some exception to the spirit of the last remark is made in the plan in regard to the *aim.* The outline of method includes, of course, the aim of the recitation as worded from the point of view of the children. But since the aim conceived from the teacher's point of view, is usually very different from the children's aim, and since each should be very clearly apprehended and carefully worded, the two are here included, with their distinctive names.

6. Owing to the great emphasis laid by modern education on the arousing of interest through new and rich thought, there is a strong desire, especially among the more earnest teachers, for a constant advance in the instruction. On this account, at least partially, these teachers are prone to neglect *detailed reviews, summaries,* and *drills.* Yet these are matters of the highest importance; interest itself, in the long run, demands much time for them. For, if they are overlooked, children soon lose the

outline of the subject matter, their attempts to use facts recently taught lead to failure; then discouragement and loss of interest follow.

It is important, therefore, that detailed reviews, summaries and drills be included in the plans, being sometimes indicated by these terms in parentheses at the proper points, but, as a rule, by the exact words in which the teacher expects to call for such work. Much is involved in the last requirement. It is easy enough, of course, simply to ask some child to "review," or "summarize" certain matter, or to "repeat it over and over." But the pedagogical demand for live questions on the part of the teacher, applies in full to calls for reviews, summaries and drills. A progressive teacher will search for thought-provoking questions and remarks. This is one of the points where a high degree of skill is possible and where improvement is greatly needed. The plan for Excelsior provides for a large amount of review and for summaries, as can be seen by examination of it. But the author has tried to avoid "going out of his way" for these. A large amount of review is ordinarily necessary in the proper advance of thought, and this plan attempts to illustrate that fact.

7. The amount of *detail* necessary for a plan is probably reasonably approximated in that here presented. Although very minor points only are omitted, no large amount of writing is required. The subject matter in this case, however, is contained in a poem; when it is not found in any particular text, the page for subject matter will naturally need to be fuller.

8. The teaching of Excelsior would probably occupy not less than three or four recitation periods, but the plan shows no subdivisions with reference to particular lessons. The plans in general should be made out for a *whole topic* rather than for certain lessons. The amount of ground that is likely to be covered in any one period should be omitted from consideration, until the plan for the entire topic has otherwise been completed. Or, at best, the suitable stopping-places may be indicated merely by an especially wide space between paragraphs.

The reason for this requirement is that it has usually been found to be too serious an interruption to one's train of thought to be compelled, when preparing a plan, to give attention to suitable 20 or 30-minute stopping-places. It is irrelevant to

the work in hand, and therfore an obstacle to connected thinking.

9. But, after a topic, covering a number of lessons, has been prepared as suggested, the *work for each day* should be written out *in more detail* as it is approached, *unless permission to the contrary is granted.* Regular teachers, wanting to make the best use of their time, might probably better omit this part of their preparation; for it must be remembered that, in regular teaching, many subjects must be neglected, and it is certainly a better use of time to outline a greater number of topics very carefully as wholes, entering thoroughly into their spirit and conceiving clearly the main points of method involved in their presentation, than to reduce the number of such topics for the sake of greater skill in minor points of method. Students in training for teaching, however, can well afford to do this work. It is plainly a matter of much importance, when it is remembered that almost every new recitation involves a new aim and a new approach to the points under consideration. One may well write out daily plans, until the habit is established of adapting one's work, in these respects, without the need of writing.

10. No recitation shall be held by any student until the *plan* for the presentation of the large topic involved *has been accepted* by the critic teacher in charge. And, in order to give this teacher time for a careful study of the plan, and the student time to make proposed changes, such plans should reach the critic teachers *not later than one full week* before the date fixed for beginning the instruction.

This regulation is one of great importance. Unexpected difficulties, of course, overtake all persons, but it is hoped that just as few "hard-luck stories" as possible, will be offered as excuses for delay in presenting these plans.

In the plan-book daily plans should follow the plan for the presentation of the large topic with which they deal. Often they may not be examined by the critic teacher until the recitation has been held; but, if required at all, they are invariably to be written in the plan-book before the recitation.

11. The *first plan* for the presentation of any topic that reaches a critic teacher for correction or approval *should be written out in the plan-book* in the exact form desired by the student and *preserved* in the book in exactly that form. The

critic teacher's suggestions will appear in the proper columns, signed by her initials. In case her suggestions call for a rewriting of the entire plan, it should be placed on following pages, and marked plainly at the beginning "second outline." A third writing should likewise be marked "third outline," etc. All daily plans should also be preserved in the plan-book in their original form.

All plan-books are finally to be given, by the critic teachers, to the Secretary of the Appointment Committee, Miss Pratt, to be filed by her for future reference. Superintendents of schools and others desiring to know the qualifications of students, as candidates for positions, will be allowed free access to these books.

During any recitation the plan-book should lie *in a prominent place* in the room for the examination of any person desiring it.

Reviews and Tests

Before taking charge of any class, the student will have reached a definite understanding with the critic teacher both as to what *new topics* he is to teach, and also as to what *topics, previously taught,* he is especially responsible for *reviewing* and *clarifying*. These old topics should be enumerated on the page for subject matter in the plan-books, just preceding the plans. They, together with the later topics outlined in these pages, will show the entire matter for which any one student has been responsible. At the end of the latter's instruction the class will be examined, orally or in writing, on any of this subject matter. The examination may be held by the critic teacher or by some other person, and the success of the children in meeting this test will be one important means of determining the success of the teaching.

In this test the rate of progress made by the class will receive little attention. In preparing the children for it, therefore, students need not advance faster than they think proper; and, above all, they need never excuse themselves for want of thoroughness by asserting that they "had to hurry." No topic "has to be finished" in a given time. It should be kept in mind, however, that a fair rate of progress must be sustained, if the interest of the children is held.

Criticism of Instruction

The critic teachers and other supervisors will witness the instruction as often as possible. At the earliest opportunity, after having received such a visit, the student teacher is expected to return the call — at regular office hours, if no different arrangement has been made — for the purpose of discussing the recitation. When students are working in pairs, the one who is not giving the instruction — unless excused by the critic teacher — is expected not only to make full plans independently, but to observe the teaching closely and offer suggestions, often in the presence of both the instructor and the critic teacher. When these suggestions are not offered before the critic teacher, they are to be written in the plan-book and signed with the full name.

Government of Pupils

(*a*) Students are expected to reach the school before the beginning of any recess period that immediately precedes their instruction, and to have charge of their classes during that period.

(*b*) They are entirely responsible for proper order during such recess, during the recitation period, and whenever they are conducting their children from one room to another. At such times the critic teacher desires to be only an observer.

(*c*) There are no set rules in regard to the government of children in the Speyer School. It is taken for granted that each person must govern in a way peculiar to himself, and the only requests here made are that each student be really determined to maintain good order, reasonably slow and judicious in the matter of punishments, and successful in securing order. The first condition of good teaching is good order. It is important to emphasize this fact, for students in times past, being greatly interested in the principles of teaching, have occasionally acted as though order were only a secondary matter.

Preparation and Handling of Materials

The materials to work with are of special importance in the Speyer School, because the curriculum calls for handwork in many other studies besides Manual Training. Students, there-

fore, are expected not only to know what materials are at their disposal and exactly where they are, but to use them. In this use every article needed in a recitation should be fully prepared and at hand before the instruction begins; and when the recitation is past, each should be restored to its proper place. Each student is himself expected to do all such work as is required by the needs of his own class.

The distribution and collection of materials has been found to be a source of so much disorder in times past, that students are requested to give special attention to the matter. They are also asked to indicate their method of handling the materials, in their plans, with the same care as is given to other parts of instruction, and likewise in direct discourse.

English

No matter what his subject of instruction may be, every student is directly responsible for *correct oral speech,* and for *neat and legible written work.* This requirement, of course, applies to the student's own oral speech and written work, as well as to the oral and written work of his pupils.

All *papers* required from a class by any student teacher shall be *collected each week* and delivered with corrections to the regular teacher in charge of the class — the delivery to take place not later than Monday of the week following the preparation of the papers.

Excursions

Excursions are regarded as a necessary part of instruction in the Speyer School, and may properly take place during school hours when such arrangements can be made. The map (see Teachers College Record, Speyer School Number, Part I) and the list of interesting points within a radius of nearly one mile from the school show the environment to be unusually rich. Students are responsible for taking the initiative in regard to excursions, but can obtain many helpful suggestions from the regular teachers.

The plan for an excursion is governed by educational principles and is to be presented in the plan-book, just as any other kind of instruction. In fact, it needs to be made out with

even more than the usual care, for an excursion is a more severe test of teaching and governing ability than ordinary instruction. The value of excursions has been scientifically established, and they are particularly important in a great city where children seldom wander more than four or five blocks from home. Yet they are by no means so common as they should be, nor so common in this country as they are abroad. This is partly owing to a want of energy in this direction among our teachers, and partly to such a lack of professional spirit that they allow themselves to feel embarrassed when seen with a company of children on the street. It is hoped that these defects will not prove characteristic of students giving instruction in the Speyer School.

Freedom

The regular teachers of the Speyer School will specify the substance of the matter to be presented to pupils. Beyond that point the instructors are free to follow their own course. They may change the sequence of topics, and may abandon the order of text in use, if they wish. Their method, also, should be their own. *But they are responsible for results.*

Meanwhile critic teachers and other supervisors will offer the most pointed and most helpful suggestions within their power. While they will commend good points, they will not hesitate to express their condemnation, in full, of bad practices, taking care, however, to give their reasons and the remedy in every case, if they can.

But all the while, the relation of critic teachers and other supervisors to student teachers is essentially that of *advisers,* and changes are to be effected by appeal to reason rather than by assertion of authority. In case the suggestions received are contrary to the best judgment of a student, or, in case his personality is such that he is convinced that he can accomplish better results in some other way, he is not only at liberty, but he owes it to himself, after having weighed the situation very carefully, to pursue his own course. It is in this way, in the main, that a teacher's disagreements with his pupils must be settled if his control over them is to prove properly educative, and, since we teach much as we are taught, the critic teachers recognize the necessity of avoiding a dogmatic spirit in their

training of students. It is a fact, that a really tolerant spirit in the expression of convictions on the part of the critic teacher, may easily prove her most powerful factor for good in the lives of those whom she criticises.

In extreme cases, of course, the critic teacher may feel compelled to assume control of the class in order to protect the children, but this need happen so seldom that it only emphasizes the general rule.

IV. PRACTICAL WORK FOR GRADUATE STUDENTS OF TEACHERS COLLEGE

By JESSE D. BURKS, ACTING PRINCIPAL

Directions and suggestions intended for undergraduate students engaged in practical work have been outlined in a previous chapter. These regulations are designed, of course, not to limit students as to reasonable freedom, but to ensure some degree of uniformity in the routine of the practical work, and thus to minimize the friction incident, in some measure, to all forms of administration. This object is obviously important in graduate work also; therefore, with the exception of cases in which special arrangements may be made by the proper authority, graduate students will be expected to conform to these same regulations.

There is, however, a distinct and important difference between the character of work ordinarily expected of undergraduates and that which, it is hoped, will to an increasing extent be done by graduate students. The principal aims, in practical work for undergraduates, are to test and to strengthen ability to teach. Beyond these, there remains as a most important aim of practical work for graduate students the development of capacity for leadership in educational thought and practice. Undergraduate students will, to a large extent, give their attention to the practical working out of a curriculum already furnished, in most of its details. Graduate students will be expected to take active part in the discussion and adjustment of problems arising in the actual administration of the Speyer School; to make contributions to the curriculum, so far as variation in its subject-matter seems reasonably to be demanded; to propose and apply improved methods of teaching and discipline; to devise means of testing mental abilities, and of making accurate and helpful records of the physical and intellectual progress of children; and to make systematic investigation concerning the conditions of life prevailing in the neighborhood of the school, with a view to increasing the effectiveness of the school as a center of social life.

The question may here arise whether the main purpose of practical work for graduate students could not be accomplished through observation, criticism, and discussion, without actual class-room work in the school. Graduate students, it might be argued, almost invariably come to the College with several years of teaching experience already to their credit. Why, then, should a few weeks of teaching in the experimental school be required of such students at the expense, perhaps, of important theoretical work or of practical work of broader range? The best answer to this question is found in the actual record of graduate students in the school. The previous experience of these students in educational work is shown by the following table:

Previous Experience of Students

(THOSE WHO TAUGHT IN THE SPEYER SCHOOL, 1901–1902)

	Teaching										Principal-ship		Superinten-dency			No Experience
	Elementary School				Secondary School			Normal School								
Time: Years	1-3	4-6	7-9	10+	1-3	4-6	7+	1-3	4-6	7+	1-3	4-6	1-3	4-6	7+	—
Number of Graduate Students	6	3	0	1	10	2	0	1	6	0	2	3	1	1	3	0
Number of Under-graduate Students	8	7	6	6	3	0	1	0	0	2	0	0	1	0	0	12

Note: — In a number of instances the same student is counted under more than one heading.

It will be observed that all of these graduate students had already taught for a number of years before entering the school for practical work. In a number of instances the students had not only taught, but had occupied positions as principals or superintendents of schools. Almost without exception, however, they showed distinct need of sharp criticism with respect both to methods and to the subject-matter of instruction, and the majority of them exhibited inability to control young pupils in a thoroughly effective way.

It is thus seen that, even from the point of view of practice, there is definite need among graduate students for actual teach-

ing under expert supervision and criticism. Such work, furthermore, brings the student to a keen appreciation of the vital problems of class-room work, in a way that no amount of observation or theoretical study could do. It is not often that teachers, in their ordinary experience, are subjected to definite, pointed criticism concerning the subject-matter and method of their work. Just such direct criticism of individual practical work seems necessary to give a person a vivid *feeling* for standards of criticism, that otherwise he may comprehend only in an objective intellectual way. It is this intimate emotional realization of the difficulties that beset the teacher and of the reasonable standards of class-room success, that must form the basis for genuine and helpful sympathy for teachers on the part of principals, superintendents of schools, and educational leaders in general.

The chief value, however, of the practical work of graduate students is to be looked for in the possible influence of such work upon the scope and method of study in the field of education. Gradually and surely, especially during the past one hundred years, the methods of scientific inquiry have been extended and applied with increasing rigor in the study of phenomena of the physical world and of social life. Astronomy, physics, chemistry, biology, economics, politics, philology, history, and psychology, one by one, have torn themselves free from the bonds of mere traditionalism and have accepted the attitude and the method of science. Students of physical and biological phenomena have, so far as possible, isolated in their laboratories the conditions most favorable to the investigation of their special problems. Students of social phenomena, similarly, have concerned themselves primarily with the systematic observation and comparison of the actual items of social life or of the most trustworthy historical evidences relating to these items. Thus investigators in widely differing fields have, by means of a common method, accumulated the materials for generalization and, step by step, have proceeded along a sure pathway toward greater and broader certainty.

It is a curious historical paradox that the study of education, in many ways the crowning interest of mankind, should so signally have failed to profit by the example furnished in the unparalleled success attained elsewhere through the method of

science. Educational problems of a most serious and practical character offer unlimited opportunities to investigators trained in scientific method. Consider, for example, the large problem involved in determining the content of an elementary-school curriculum. Sections of the last number of the RECORD have emphasized the unsettled condition of contemporary thought and practice with respect to this problem. In response to a general demand, there has been, during recent years, a marked enrichment of the curriculum with the result that there is now a widespread outcry against an overloaded course of study. The obvious solution of the difficulty is to determine what are the indispensable and necessary elements of the curriculum and to exclude much matter that is relatively unimportant. There is, however, no general agreement as to relative values of subject-matter, and the important problem remains unsolved. There is a clear demand here for an accurate answer to the question, based upon scientific observation and experiment.

This brings us to a most important factor in the general problem of outlining a curriculum; namely, the precise relations of individual studies to mental abilities. In other words, what is the actual effect of a given study upon the mental life of a child? Obviously the answer given to this question will play a large part in determining the character of a course of study. It has usually been assumed, for example, that there is "a reasoning power" in children that may be developed and trained by such a subject as arithmetic. One of the recent contributions of psychology is, however, that judgment developed in the field of arithmetic furnishes no guarantee whatever that there will be increased efficiency of judgment in many other fields of experience. There appear, in fact, to be as many independent "judgments" as there are independent "memories." We must, therefore, give up the idea of training "the" judgment by the study of any single subject and must justify the place of arithmetic in the curriculum, if at all, upon some other ground.

Here again, it is only by means of data scientifically collected and compared that we can determine, with any degree of certainty, just what arithmetic is accomplishing in the mental growth of children besides giving accuracy and quickness in the manipulation of numerical symbols. The question of what the study may accomplish, if revised and amplified, is of course

an entirely different, though equally important subject for experiment.

To illustrate the opportunity for valuable experimental work in the field of method, a single example will suffice. Much of recent advance in educational practice has been due to the increasing appreciation of the value of apperception as a principle of method. The best teachers are now agreed as to making vital and vivid connection between the new matter presented in instruction and the previous experience of children. The principle of apperception, as it has been applied in school practice, however, does not go far enough. Knowledge is not fully assimilated until vital relations have been established at *both* ends; *initially* with the previous experience of the learners, and *finally* with concrete human interests and activities. It would be easy, for instance, in teaching the geography of the Pacific Coast, to find an excellent point of departure in the common interests and experiences of members of the class. The children may every day be eating fruit from California; they may have friends that have gone to the coast for health or for greater industrial opportunity; they may be acquainted with the story of the famous voyage of the "Oregon," with tales of the days of '49, or with some of the adventures of the early Spanish settlers. By making proper use of such knowledge as this, we may lay the foundation for a sustained interest in the study of the climate, physiography, and industrial life of the far western States. Nevertheless we may leave the whole matter in the air, — insignificant and unrelated, so far as the real importance of this region is concerned — unless we go further and bring out the geographical relations of the Western coast to the rest of the country and to the world at large. A few years ago, San Francisco was the back door of the United States; important as a commercial center for a large district of great natural resources, but without foreign relations of pressing consequence. With the growing prominence of political affairs in the far East and with the extension of our territorial bounds to the Pacific islands and to the Philippines, the geographical location of San Francisco has practically shifted to the very center of much of the most serious and inspiring activity of the nation. This point is rapidly becoming the gateway for the vast trade with the Orient; its tremendous strategic importance as a military station is well recognized, and adequate

equipment is being provided for offensive and defensive operations in time of war. New lines of trans-continental railways and trans-oceanic steamships are meeting the demands for increased transportation facilities. These are illustrations of the kind of connections that will give social worth to geographical facts.

The principle of apperception, interpreted thus broadly, will be a powerful factor in clarifying the social understanding, in expanding the social sympathy, and in stimulating the social vitality of our pupils. Heretofore, the principle of apperception has been emphasized on its *psychological* rather than on its *social* side. It has seemed to be sufficient that an appropriate *starting point* be found in the experience of the pupils, without much regard to where knowledge *ends*. Judged by a social standard, such procedure is clearly inadequate to the higher purpose of education, for the characteristically human touch is lacking.

Accepting this conclusion, there is evidently a demand for a great amount of careful investigation and experimentation that shall aim to find and disclose the vital connections between the subjects of school study and the large and pregnant interests of social life, and to show the teachers of America how such connections can be utilized in the development of social power in their pupils. Such a problem is to be reasonably approached, as will be shown, only through actual living contact with children; it is worthy of the efforts of the most highly skilled investigator and its solution, with respect to each subject or group of subjects, will be a notable contribution to the technique of educational practice.

We have pointed out the practical need for original research by experts in the field of education; but there is another aspect of the question that has an important bearing upon the academic standing of a college. A college to maintain its place, on equal terms, among institutions of the true university type, must recognize and uphold a clear distinction between graduate and undergraduate work and must lay increasing emphasis, in graduate work, upon research and training for original investigation. President Butler, in his first annual report, dated October 6, 1902, makes the following terse and forceful statement of the duty of the University toward the promotion of research: "The best teacher is a constant student, and the con-

stant student sooner or later tends to become an investigator. The terms investigation and original research have been so parodied and abused of late, that their real significance is not understood and valued as it should be. Yet these terms stand for the idea which differentiates the University from the College. We shall not reach an ideal condition until every department in the University, without exception, regards itself as charged with the duty of investigating as well as with that of teaching. Among its advanced students there should always be a group of those who are being trained in the methods by which real investigation is alone possible; the spirit of investigation and the pursuit of new truth should pervade every University department from top to bottom." The establishment of the Speyer School with its possibilities for experimental work and the provision made, in every department offering graduate work, for research, are evidences of the devotion of Teachers College to the highest standards of scholarship.

Some attention has already been given, in this section, to a few educational problems that illustrate in detail the *importance* of experimental study. The mere cataloguing of a considerable number of the practical problems which, in addition to those already suggested, are testing the resources of progressive educational leaders, will indicate the wide *extent* of the field in which careful observation and experiment are imperatively demanded.

To begin with, if we accept "social worth" rather than the individual interests of children as a standard of value, we must take an invoice of the subject-matter of our curricula and determine what we shall emphasize and what we shall minimize. In arithmetic, for example, supposing this to be one of the subjects retained, shall we continue to include such topics as Troy and Apothecaries' weight, profit and loss, partnership, dry measure, discount, compound proportion, cube root, equation of payments, stocks and bonds, — topics seldom entering into the life of most men; shall we recognize differences in the practical value of various common fractions and in the relative usefulness of common and decimal fractions; and, finally, shall we aim to introduce children through arithmetic into a large and significant body of thoughts about human life, just as fully as we do in the teaching of geography or literature?

Again, shall physiology be continued as a separate study, or shall it constitute the culmination and application of some part of nature study? Shall we go much farther than we have usually gone in the direction of definite instruction on personal cleanliness, neatness, politeness, and health; on the ventilation, lighting, and warming of dwellings; on the arrangement of furniture and of decorations in the home; on the relative food values of various articles of diet; on the quality and cost of clothing, furniture, and fuel; on the purpose and value of economy and foresight?

Such problems as these bring up the vexed question of direct or indirect ethical instruction, to which we have as yet no generally accepted or thoroughly satisfactory answer. It is possible that much of the discussion on this point might be eliminated if we should give up the common assumption that the ethical principles underlying school life and practice are in some way different from those that we recognize in other social activities. Stated a little differently, there would probably be greater agreement as to the place and importance of ethical culture in the school, if the significance of "ethical" were expanded to include the whole attitude of sincerity, fidelity, and social responsiveness, which might as readily find application in the school as out. This question is, of course, one of fundamental educational theory and as such cannot be settled by an appeal to experience. Assuming, however, a philosophical conviction on the question, there remain many problems concerning the selection of material and the adaptation of method to secure the fullest and most effective ethical life.

The peculiar responsibilities that have been assumed by the Speyer School open a new and important field of investigation to students of education. The school is not only to meet the requirements of the traditional school, but is also to serve as a social and educational center for the adult population. Problems at once present themselves as to the kind and extent of work that shall be undertaken. How shall this school-extension work be conducted so that the students shall not only be interested, but educated in a truly worthy sense? To what extent may such work safely and profitably be undertaken by the public schools of cities? These and many other problems of similar character must be answered not *a priori*, but by careful

reference to the experience of social settlements and individual observers, and by scholarly field-work on the part of properly qualified students of education.

Turning from the field of subject-matter to that of method, we find a multitude of problems calling for scientific study and solution. How can the irrepressible tendency to physical activity on the part of young children be made to contribute normally and profitably to the regular work of the school? What materials, such as clay, pictures, and wood, are appropriate to various studies of the school course? How can we make children's play richer without interfering with its spontaneity? Where and how can the dramatic instincts of children be utilized as a method of vitalizing and of making vivid the subjects of study? How and where can excursions be utilized in school work? How can the "mechanics" of the class room be organized so as to give the children training in leadership and in coöperation and, at the same time, secure economy of time and general effectiveness? These are a few of the important problems of method and will indicate sufficiently well the wide extent of this field for experimental study.

Workers in child-study are, as a body, already committed to scientific method, though it is doubtless true that children would often be amazed, not to say amused, if they could look with understanding eyes upon their own alleged portraits drawn by enthusiastic but misguided "child-students." There are many significant problems in child psychology that must be solved, before we can have a rational system of school administration. A very few examples will show the range of this field of investigation: To what extent does heredity determine the character and fix the limits of mental traits and, correlatively, how far can education alter the character and extend the limits of mental abilities? How are mental abilities correlated in an individual: are they grouped as ordinarily assumed in courses of study, or not? What are the best means of getting accurate records of mental traits? What facts of mental life is it possible or desirable to record? Can a system of blank forms be devised that will tell an intelligible story of mental and physical growth and that will be practicable for school purposes?

No attempt has been made here to distinguish between the problems related primarily to the kindergarten and those bear-

ing more intimately upon the elementary school. There is in fact much common ground that has not heretofore been fully recognized as such. Much of the most gratifying progress made in the primary grades during recent years has been due to the direct influence of the kindergarten. It seems desirable, therefore, to emphasize the closeness of the relationship rather than the contrary.

It is clear that no amount of library research alone will suffice for a thorough solution of such problems as those suggested above. Valuable as the records of educational theory and practice are as warnings and as guides, they can do no more than suggest general lines of procedure when we encounter new situations and new problems. To secure results that will stand the severe test of experience, we must supplement a wide knowledge of the history of general culture and of educational activity, by a thoroughgoing knowledge of living children and by the experimental study of school problems.

The need of such experimental study of educational problems is further emphasized by an examination of the historic development of school practice. It is often assumed that the curricula and the methods of instruction prevailing in the common school, are the outcome of generations of thoughtful study and rational adjustment. The facts of history do not, however, bear out this assumption. Both curricula and methods, as we have them to-day, are, in many respects, survivals of a development that took place under conditions radically different from those of modern life, and in a manner quite fortuitous rather than carefully reasoned. Notwithstanding the intelligent interest and high ability that, during recent years especially, have been devoted to the direction and management of school affairs, it is still widely true that tradition and not reason is the strongest influence in school practice. Curricula are what they are largely because of a feeling that certain subjects have a claim, as by divine right, to official recognition, and that other subjects, not being in the direct line of royal descent, must be scrupulously excluded from the aristocracy of the court. Prevailing methods, too, command the imperial favor largely because they are a code of etiquette established under an *ancien régime* and sanctioned, therefore, by immemorial origin and historic usage.

It is well for the schools, it must be confessed, that the

conservative forces guard their interests with such jealous care. This is truly the day of the agitator, the innovator, the radical, in education as in economic, political, and religious life. The untried or unproven nostrums that are to set at rights all of our educational ills are urged with much earnest persistence. It is greatly to the credit of the guardians of our educational order, therefore, that the schemes of self-appointed leaders and of pedagogical "promoters," have been so steadily ignored.

This is not to say, however, that our educational destiny can safely be entrusted entirely to the conservatives. Indispensable as are the restraints of conservatism, and dangerous as are the unchecked artifices of radicalism, here as elsewhere rational progress can be secured only through the proper interaction of the two forces. Gradual change, under the control of sober judgment and mature experience, must be the order of prudent advance.

It seems hardly necessary to answer the oft-repeated objection that "experimenting with children" is a reprehensible practice, incompatible with the best interests of children. Every intelligent teacher *is* an experimenter, in the sense that he is constantly seeking to find better means and better matter to carry out the aim of education. The person trained in the methods of scientific research simply has an advantage over a person not so trained, in the directness and facility with which he is able to carry on *his* experiments. As Professor Dewey has aptly said, "The experimentation is for the children, not with the children." The children will be benefited rather than injured by such work. The perennial freshness of interest, the attitude of inquiry, and the open-mindedness that must inevitably characterize the professional work of a person trained to habits of true scholarship, are in themselves a sufficient reason for placing marked emphasis upon methods of research in all advanced work in education.

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The College offers 56 courses in Education, including 6 courses on the History and Principles of Education, 4 courses on Educational Administration, 7 courses on Educational Psychology, and 25 courses on the theory and practice of teaching Biology, Domestic Art, Domestic Science, English, Fine Arts, French, Geography, German, Greek, History, Kindergarten, Latin, Manual Training, Mathematics, Music, Physical Science and Physical Education. Other courses of instruction supplementary to those above are as follows: Biology, 6 courses; Domestic Art, 5 courses; Domestic Science, 10 courses; English, 6 courses; Fine Arts, 14 courses; French, 3 courses; German, 2 courses; Geography, 4 courses; History, 4 courses; Kindergarten, 4 courses; Manual Training, 9 courses; Mathematics, 3 courses; Music, 5 courses; Physical Science, 4 courses, and Physical Education, 6 courses. Qualified students of Teachers College may also pursue University courses in History, Language and Literature, Natural Science, Mathematics, Philosophy, Psychology, Ethics, Anthropology, Music, Economics and Social Science.

Teachers College Schools

Teachers College maintains two schools of observation and practice: one, the Horace Mann School, the other known as the Speyer School. The Horace Mann School comprises three departments — a kindergarten for children of three to six years of age, an elementary school of eight grades, and a high school of four grades. The Speyer School consists of a kindergarten, elementary school, and special classes in sewing, cooking and manual training.

Courses of Study

Courses of Study are as follows: (1) A two-year Collegiate Course which if followed by a two-year professional course leads to the degree of B.S.; (2) Two-year professional courses leading to the Bachelor's diploma in (a) Secondary Teaching, (b) Elementary Teaching, (c) Kindergarten, (d) Domestic Art, (e) Domestic Science, (f) Fine Arts, (g) Music, and (h) Manual Training; (3) Graduate courses of one and two years, respectively, leading to the Master's and Doctor's diplomas in the several departments of the College. Students holding the degree of B.S. or A.B. may become candidates for A.M. and Ph.D.

Admission Requirements

The requirements for admission are as follows: (1) To the Collegiate Course — completion of a high-school course; (2) to the two-year courses — (*a*, *b*, and *c* above) completion of the Collegiate Course or its equivalent in an approved college or graduation from an approved normal school; (*d*, *e*, *f*, *g*, *h*) same as for (*a*) and (*b*) or two years of technical training or experience in teaching; (3) to the graduate courses — college graduation or its equivalent.

Fellowships and Scholarships

Tuition in graduate courses and courses leading to a degree, $150; in other courses, $100. The faculty annually awards 5 Fellowships of $650 each, 1 Scholarship of $400, 12 Scholarships of $150 each, and 4 Scholarships of $75 each.

For circulars and further information, address the Secretary.

JAMES E. RUSSELL, Ph.D., Dean.

Columbia University in the City of New York

Columbia University includes both a college and a university in the strict sense of the words. The college is Columbia College, founded in 1754 as King's College. The University consists of the Faculties of Law, Medicine, Philosophy, Political Science, Pure Science, and Applied Science.

The point of contact between the college and the university is the senior year of the college, during which year students in the college pursue their studies, with the consent of the college faculty, under one or more of the faculties of the university.

Barnard College, a college for women, is financially a separate corporation; but, educationally, is a part of the system of Columbia University.

Teachers College, a professional school for teachers, is also, financially, a separate corporation; and also, educationally, a part of the system of Columbia University.

Each college and school is under the charge of its own faculty, except that the Schools of Mines, Chemistry, Engineering, and Architecture are all under the charge of the Faculty of Applied Science.

For the care and advancement of the general interests of the university educational system, as a whole, a Council has been established, which is representative of all the corporations concerned.

I. THE COLLEGES.

Columbia College offers for men a course of four years, leading to the degree of Bachelor of Arts. Candidates for admission to the college must be at least fifteen years of age, and pass an examination on prescribed subjects, the particulars concerning which may be found in the annual Circular of Information.

Barnard College, founded in 1889, offers for women a course of four years, leading to the degree of Bachelor of Arts. Candidates for admission to the college must be at least fifteen years of age, and pass an examination on prescribed subjects, the particulars concerning which may be found in the annual Circular of Information.

II. THE UNIVERSITY.

In a technical sense, the Faculties of Law, Medicine, Philosophy, Political Science, Pure Science, and Applied Science, taken together constitute the university. These faculties offer advanced courses of study and investigation, respectively, in (*a*) private or municipal law, (*b*) medicine, (*c*) philosophy, philology, and letters, (*d*) history, economics, and public law, (*e*) mathematics and natural science, and (*f*) applied science. Courses of study under all of these faculties are open to members of the senior class in Columbia College. Certain courses under the non-professional faculties are open to women who have taken the first degree. These courses lead, through the Bachelor's degree, to the university degrees of Master of Arts and Doctor of Philosophy. The degree of Master of Laws is also conferred for advanced work in law done under the Faculties of Law and Political Science together.

III. THE PROFESSIONAL SCHOOLS.

The Faculties of Law, Medicine, and Applied Science conduct respectively the professional schools of Law, Medicine, and Mines, Chemistry, Engineering, and Architecture, to which students are admitted as candidates for professional degrees on terms prescribed by the faculties concerned. The faculty of Teachers College conducts professional courses for teachers, that lead to a diploma of the university.

1. THE SCHOOL OF LAW, established in 1858, offers a course of three years, in the principles and practice of private and public law, leading to the degree of Bachelor of Laws.

2. THE COLLEGE OF PHYSICIANS AND SURGEONS, founded in 1807, offers a course of four years, in the principles and practice of medicine and surgery, leading to the degree of Doctor of Medicine.

3. THE SCHOOL OF MINES, established in 1864, offers courses of study, each of four years, leading to a professional degree in mining engineering and in metallurgy.

4. THE SCHOOLS OF CHEMISTRY, ENGINEERING, AND ARCHITECTURE, set off from the School of Mines in 1896, offer respectively, courses of study, each of four years, leading to an appropriate professional degree, in analytical and applied chemistry; in civil, sanitary, electrical, and mechanical engineering; and in architecture.

5. TEACHERS COLLEGE, founded in 1888 and chartered in 1889, was included in the university in 1898. It offers the following courses of study: (*a*) graduate courses leading to the Master's and Doctor's diplomas in the several departments of the College; (*b*) professional courses, each of two years, leading to the Bachelor's diploma for Secondary Teaching, Elementary Teaching, Kindergarten, Domestic Art, Domestic Science, Fine Arts, Music, and Manual Training; (*c*) a collegiate course of two years, which, if followed by a two-year professional course, leads to the degree of Bachelor of Science. Certain of its courses may be taken, without extra charge, by students of the university in partial fulfilment of the requirements for the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

NICHOLAS MURRAY BUTLER, LL.D.,
President.

Teachers College Record

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